

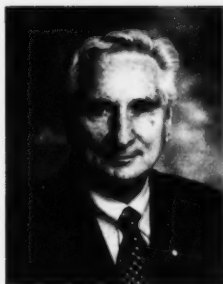


Higher Education
Quality Council
of Ontario

An agency of the Government of Ontario

Third Annual Review and Research Plan





President's Introduction

Public discourse about higher education tends to emphasize the inevitable gap between what is and what might be, between the actual and the ideal. But measured by most empirical standards, higher education in Ontario is a great success story, as this Review shows.

- Enrolments and participation rates at universities and colleges are at their highest levels ever.
- The share of young people who have attained a higher education credential ranks first among the provinces, compares favourably to OECD nations, and is commensurate with the proportion of new jobs requiring postsecondary education.
- The government has put in place a number of innovative student assistance programs that aim to widen participation among groups who historically have been under-represented.
- Employment rates for university and college graduates are generally high, and graduates express high levels of satisfaction with the education they have received.
- Processes are in place, or will soon be in place, to assess the quality of all programs of study offered by public universities and colleges and out-of-province providers.
- The government has taken steps to introduce a comprehensive accountability framework and has invited HEQCO to assist in its design, which we do in the following pages.

The high levels of accessibility and quality in our postsecondary education system have their foundations in decades past, but their improvement in recent years is due in no small measure to the additional support of the provincial government through its Reaching Higher

plan. Credit for the plan's success must be shared with our universities' and colleges' faculty, staff, alumni, and supporters, who have adapted creatively to the needs of a rapidly-changing economy and society.

The past, however, is always prelude. The adaptation that lies ahead bids fair to be very difficult and to require even more creativity. The recent recession has affected almost all public and private organizations. The provincial government's deficit, measured as a share of the economy, is near record levels—in line with the situation facing governments world-wide. In the near future, the government will make critical choices about how to support economic recovery and bring the province's finances back into balance.

Higher education cannot expect to be insulated from the fiscal duress of the society it serves. But the way these challenges are faced will determine whether we put at risk Ontario's hard-won achievements in higher education, or—alternatively—whether we can adopt new approaches that maintain and build on these achievements.

There may be a temptation to take a minimalist approach to the management of change: to reduce government operating grants in the hope that universities and colleges can manage the consequences without affecting students' education. Experience suggests that such an approach would lead to diminishment and disappointment. Universities and colleges had much experience in the two decades preceding Reaching Higher of pruning programs and cutting administrative costs. The risk now is that additional savings could be found only by reducing students' opportunity to engage with faculty and their access to services required

to succeed. This would mean larger classes, more temporary faculty, and fewer supports for students who face academic challenges. Maintaining the levels of quality and accessibility that have been achieved in Ontario higher education means we must be realistic about the potential for savings in a system that continues to receive less government support than many higher education systems in Canada and the United States. It also means we must monitor and assess the effect on students of any future savings to be achieved.

Maintaining quality and accessibility in a period of constrained funding will present increasingly difficult challenges for the government and for colleges and universities. The Council has received a research report this year that argues for more fundamental change: that, over the medium term, Ontario's model of baccalaureate education is not sustainable and needs to include a larger role for faculty and institutions that are focused on high-quality undergraduate teaching. Ontario is unusual in relying almost exclusively on research universities to meet the growing demand for baccalaureate education—a high-cost model that will be increasingly difficult to afford as the number of young people seeking baccalaureate education continues to grow. Assessing and building on the findings of this report will form an important part of the Council's research program in the coming year.

As this Review again demonstrates, the Council is active in providing research, advice, and evaluation that support evidence-based decision making. We do so at a time when, the federal government has ceased to fund national institutions that have provided important assessments of the state of higher education—including the Canadian Policy Research Networks, the Canada Millennium Scholarship Foundation, and most recently the Canadian Council on Learning. The cost of assessment is exceedingly modest—in HEQCO's case, about one-tenth of 1 per cent of the provincial taxpayers' support for higher education—and so it is especially regrettable that the work of these national institutions will not continue. While HEQCO cannot fulfill their missions, we will continue to provide Ontarians with information about how well our universities and colleges are performing and what needs to be done to meet the challenges ahead.

It has been a singular privilege to be the founding president of HEQCO. It has also been a challenge for my colleagues and me to find a just balance between the conduct of independent, evidence-based research and the more pressing and pragmatic needs of government. On this front, as on others, we have made progress, and

I take leave of HEQCO with a deep sense of gratitude for having had the opportunity to play a part in a unique agency dedicated to the assessment and improvement of higher education in Ontario.

We have, I believe, made a good beginning—evidenced by the research and policy analysis described in this Review, and demonstrated by the quality and commitment of the men and women who comprise the board and staff of HEQCO. Among them, I wish to single out for admiration and special thanks the Council's chair, the Honourable Frank Iacobucci, and Vice-President Research, Dr. Ken Norrie. My thanks also to the heads of Ontario's colleges and universities who have supported our work and welcomed us into their institutions.

Finally, I wish to commend the McGuinty government on its enlightened commitment to higher education and for providing HEQCO with sufficient independence and resources to perform its unique mission.



James Downey
President & CEO

Executive Summary

The Higher Education Quality Council of Ontario (HEQCO)'s *Third Annual Review and Research Plan* provides a comprehensive evaluation of the postsecondary education (PSE) system in Ontario. In doing so, it contributes to a discussion on a new PSE strategy for the province following the completion of *Reaching Higher: The McGuinty Government Plan for Postsecondary Education (Reaching Higher)* initiated in 2005. This is a critical juncture in PSE; *Reaching Higher* ends this fiscal year, as do the current tuition framework and the Multi-Year Accountability Agreements (MYAAs) with postsecondary institutions. Successor strategies must address a new set of priorities and a new economic reality.

Reaching Higher was generally well received by the PSE sector and by the public, and much progress has been made in realizing the stated objectives in the plan.

The *Third Annual Review and Research Plan* recommends that a new PSE strategy should build directly on *Reaching Higher*. To this end, it proposes a reformulation of PSE objectives to give emphasis to meeting human capital needs, improving accessibility and educational quality, and stimulating research and innovation.

Human Capital

Reaching Higher identified postsecondary education as key to the future success of Ontarians and, thus, of the province. As such, it put considerable emphasis on increasing enrolment in colleges and universities. This objective has been realized. Total college full-time equivalent (FTE) enrolment was nearly 193,420 in 2008-09 compared to 182,404 in 2004-05, before *Reaching Higher*. Total university FTE enrolment was nearly 364,000 in 2008-09 compared to 330,374 in 2004-05.

It is estimated that two-thirds of new jobs created between 2006 and 2016 will require workers who have some postsecondary education and training. Our analysis indicates that 61 per cent of Ontarians aged 25-64 in 2006 have already earned a PSE credential (HEQCO, 2009). Furthermore, among Ontario's younger population and future workforce, Ontario's expected PSE attainment rate is about 70 per cent. This expected attainment rate is first among provinces, compares favourably to OECD countries, and corresponds to the expected proportion of new jobs requiring postsecondary education and training. In other words, Ontario is currently meeting its overall requirements for a workforce with postsecondary credentials. However, the evidence is inconclusive as to whether Ontario's college and university graduates have the knowledge and skills mix appropriate for the new economy.

For data reasons, most of the analysis on this issue is at the national level. Human Resources and Skills Development Canada (HRSDC) data on relative unemployment rates and relative wages across five skill profiles found that, at this high degree of aggregation, the national labour market has not experienced sustained imbalances between demand and supply. However, looking at specific educational level, HRSDC finds that there is a slight increase in relative unemployment rates for those with less than a high school diploma and for university graduates. A number of occupations appear to be experiencing excess demand conditions while others appear to be experiencing excess supply conditions. Looking to the year 2015, HRSDC projects a general balance between demand and supply, with perhaps a slight undersupply of workers with management training and workers for occupations usually requiring college education or apprenticeship and

on-the-job training in the trades and crafts.

At the provincial level, one important source of information on the alignment of PSE with labour market needs comes from college surveys. The *College Graduate Satisfaction Survey* found that 86 per cent of graduates were satisfied with their career preparation in 2007 and the *Employer Satisfaction Survey* showed that 93 per cent of employers were satisfied with their employees' overall college preparation.

The employment rate six months after graduation among recent college graduates who were seeking work is 88.9 per cent, and among university graduates is 94.1 per cent. Research being supported by HEQCO will explore the labour market outcomes for Ontario graduates, the changes and challenges facing graduates, and the alignment between PSE outputs and labour market demands.

Accessibility

There are several broad population groups that are under-represented in PSE—students from low income families, first generation students, Aboriginals, persons with disabilities, and some immigrant groups. We also look at gender imbalances in our analysis.

Family income plays a significant role in determining who applies to university. In a research report supported by HEQCO, the data suggest that, even after we factor out demographic characteristics and secondary school characteristics, there is a 13.6 per cent gap in university application rates between the highest and lowest income quartiles. The study also shows that income affects students' program choices. However, once students make the decision to apply to university and are accepted, family income has virtually no impact on whether they actually register.

An internal HEQCO study showed that there was little change in university participation among the bottom three income quartiles during the period 1999 to 2007, while university participation for the highest income quartile increased. College participation showed little change over time among income quartiles.

Research commissioned by HEQCO on the profiles of first generation students suggests that more first generation applicants tend to be female, live in rural areas, and commute to PSE. They are also more likely to report lower grades and are less likely to enter PSE directly from secondary school. The Ministry has initiated several projects to increase the participation and persistence of first generation students, and these

projects will be evaluated in future.

Aboriginal students are well represented among college graduates but under-represented among university graduates. Overall, the percentage of the Aboriginal population with a PSE credential was only slightly over one-third of the provincial average when last surveyed, which is perhaps explained by the high drop-out rate from secondary school, a rate more than double that of the province as a whole. The proportion of Aboriginals with a trades certificate or diploma was significantly higher than for their non-Aboriginal counterparts, and equal for registered apprenticeships. Unfortunately, official data do not exist on the number of Aboriginal students enrolled in Ontario's PSE system so we cannot calculate participation and graduation rates. Problems arise when defining the term Aboriginal and when relying on a system that requires individuals to self-identify. HEQCO is supporting research that looks at designing survey questions so that Aboriginal students are more accurately reflected in research.

Up-to-date data on PSE attainment among persons with disabilities is expected to be released soon. As of 2001, persons with disabilities were more likely to possess a trade or apprenticeship credential than the population as a whole (12 per cent compared to 8.8 per cent), although rates of college attainment were somewhat lower (17.5 per cent compared to 22 per cent). The real discrepancy was in university attainment, which sits at about 40 per cent of the provincial average. A special study on students with Autism Spectrum Disorder suggests that the number participating in Ontario's postsecondary system will increase in the future, but that the social and academic services required by these students may not be adequate.

Ontario has been a destination of choice for immigrants. Twenty-one per cent of Ontarians with a PSE credential in 2006 obtained it outside of Ontario. Immigrants are more likely than non-immigrants to have university degrees, and less likely to have credentials from a college or registered apprenticeship. Future research will focus on the labour force experience of immigrants with PSE, and on PSE participation among children of immigrants.

Gender has also emerged as a topic of interest. Although females have been traditionally under-represented in the PSE sector, 58 per cent of university undergraduates in 2006 were female and, in 2007-08, 53 per cent of college students were female. By contrast, female participation in apprenticeships was only 19 per cent in 2007. Females are predominant in half of the academic disciplines at

universities, although males remain predominant in such sciences as physics and chemistry. Female participation has been declining in engineering for the past decade, while male participation has seen an increase. The gains made by females in educational attainment have not translated into full equality in earnings. There may be specific groups of males and females who are not getting the attention they need. Further analysis of gender data by characteristics such as socioeconomic status, ethnicity, and geography may provide more nuanced results to help identify which males and which females may be at risk.

Educational Quality

Reaching Higher aimed to improve educational quality, which it defined as enhancing the student experience. To evaluate whether Ontario is meeting its objectives to improve educational quality, we must compare actual performance to the targets and benchmarks for quality. Unfortunately, this is not easily done. HEQCO defines a quality education system as one offering effective teaching and learning, offering program options that are responsive to social and economic needs, and ensuring that the great majority of students graduate within a reasonable amount of time. The greatest challenges lie in gauging learning outcomes and evaluating graduation rates and times to completion. However, there are some promising options that can provide useful insights into educational quality in Ontario.

The Ontario Qualifications Framework (OQF) sets out expected learning outcomes for all certificate, diploma, and degree programs. It provides descriptions for typical program length and admission requirements, and identifies various expected learning outcomes such as depth and breadth of knowledge, conceptual and methodological awareness, communication skills, etc. The challenge is to determine if these learning outcomes are being realized. In chapter 3, we look to quality assurance mechanisms and quantitative indicators to provide some answers.

Ontario has a number of quality assurance programs in place, ranging from the Credentials Validation Service (CVS) to the Ontario Council on Graduate Studies (OCGS); it is reasonable to assume that we have the processes in place, or soon to be in place, that are appropriate for Ontario's unique mix of institutions.

Using surveys to measure student, graduate, and employer satisfaction, colleges are able to collect quantitative data on educational quality. Data from these surveys suggest that for the period 2000-01 to 2008-09, the majority of employers were "satisfied" or "very

satisfied" with their employees' educational preparation; college graduates had satisfaction rates of between 80 per cent and 85 per cent; and students had satisfaction rates of about 75 per cent to 80 per cent. When asked about the knowledge and skills they were acquiring from their programs, over 87 per cent of students in 2008 responded that they were "satisfied" or "very satisfied." Satisfaction with the learning experience is also high, with over 82 per cent of respondents indicating that they were "satisfied" or "very satisfied."

The *National Survey of Student Engagement* (NSSE) is the leading tool for measuring engagement at universities. In 2008, 38 Canadian universities, including all 19 from Ontario, participated in NSSE. Ontario compares favourably to other Canadian universities on the five benchmark scores but, as in previous years, lags American counterparts in two key areas—student-faculty interaction, and opportunities for enriching educational experiences. When asked to rate their entire educational experience, between 70 per cent and 90 per cent of first-year students were "satisfied" or "very satisfied" and fourth-year students' satisfaction registered between 65 per cent and 90 per cent.

The *Canadian Graduate and Professional Student Survey* was designed to gain insights into the experiences of graduate and professional students. In 2007, 16 Ontario institutions participated in the survey. When asked to rate their overall academic experience, between 55 per cent and 75 per cent of students responded "excellent" or "very good," although ratings for quality of life experience were much lower.

Another important issue to consider when discussing educational quality is the means of improving retention and graduation rates. National data show that 73.1 per cent of college students and 69.4 per cent of university students graduate within five years of first registering. Others remain in school and may graduate in future. The research is less advanced about why some students drop out. Most cite lack of interest and poor program fit as their reasons to drop out, whereas financial barriers and family background do not appear to pose a problem. HEQCO is exploring this issue.

HEQCO-supported research underway includes a national project to mine and analyze NSSE data from 44 Canadian institutions, as well as a number of projects that aim to understand the determinants of retention and graduation rates in Ontario PSE, to improve the student experience and teaching and learning, and to develop a better understanding of co-op programs and other work-integrated learning.

Accountability

Accountability was a major objective of *Reaching Higher*, which aimed to set targets and measures to monitor the quality and performance of the PSE sector in Ontario. In chapter 4, we propose that an accountability framework should be an instrument that provides information to the public, the Ministry, and the institutions themselves on the performance of the PSE system relative to expectations and be used to record institutional priorities and guide a collaborative planning process. The accountability framework would contain three components: system accountability, institution accountability, and planning.

More specifically, we recommend an accountability framework that does the following:

- sets explicit targets for PSE system goals
- creates a consultative process to establish system targets
- supports a two-part reporting framework for institutions
- allows individual targets for core indicators to vary with institutional missions
- supports consistent definitions and data for core performance indicators
- provides for discussions between the Ministry and the institutions
- encourages qualitative and quantitative evaluation of performance relative to targets
- creates a link between the accountability and planning components

System Design

Over the next few years, the higher education system will face the challenge of accommodating tens of thousands of additional students in an environment where government spending will be highly constrained and funding from endowment investments and private donations will be weak. Changes in system design may be required.

Over 350 college-university collaborative agreements are now in place, compared to just over 300 in 2008. Many arrangements are bilateral and the majority of receiving institutions are universities. There is now a greater need for a more seamless PSE system in Ontario as more and more students are forging new and different pathways. Although efforts have been made to record various pathways through the postsecondary education system, there lacks a system-wide source of information on student mobility in Ontario. The *Graduate Satisfaction Survey* provides the most complete information on pathways chosen by college graduates; in particular,

they suggested that, in 2006-07, just under 30 per cent of graduates continued their education within six months of graduation, and that most of these students returned to their own college to pursue further education. The students who continue on in their studies tend to be female, under age 22, to have graduated with a basic or advanced diploma, and to have graduated from a larger college.

Many students from under-represented groups begin their education in college rather than university. Improving transfer pathways could be a way to provide under-represented students with a more equitable opportunity to obtain a university degree.

A new funding framework will have to be implemented because the *Reaching Higher* funding commitment ends this fiscal year. Such a framework should address how much funding is needed, where the funding should come from, how government grants should be structured and whether there should be constraints on revenue from other sources.

Assessing the long-term trend in revenue per student depends very much on what deflator we choose to use. Using the Consumer Price Index (CPI), inflation-adjusted revenue per full-time equivalent student in 2008 was virtually identical to what it was in 1980. Using a special Higher Education Price Index (HEPI) as a measure of inflation indicates that real revenue per FTE university student was 21.2 per cent lower in 2008 than in 1980. Since 2005 and the *Reaching Higher* investments, there has been an increase in funding per FTE student. Real revenue per college FTE depicts a similar story. Also, in both cases, the composition of revenue has changed over time, with a greater reliance on tuition fees.

A recent book sponsored by HEQCO proposes a new design for Ontario's PSE system. The authors argue that the system is unsustainable as currently designed. They suggest that a reliance on the research university model for providing baccalaureate education is too costly and does not provide the mix of educational experiences needed to serve an increasingly diverse student population. Over the last two decades, costs have risen more rapidly than revenues for both colleges and universities. Institutions have coped in part by increasing average class sizes and by relying relatively more on contract instructors. On various occasions, the government has assisted with year-end, one-time transfers.

The authors argue, and we agree, that there are limits to adjustments like these. It will become increasingly difficult to absorb additional students while meeting growing expectations for research and public service.

Eventually, it will become impossible.

The authors propose a number of changes to the current system, which include:

- increasing institutional differentiation
- implementing a high-quality three-year degree
- improving opportunities for college to university transfer
- creating a new set of institutions that focus on undergraduate teaching
- increasing degree-granting opportunities for colleges
- creating an open university

However, they stop short of providing evidence of the relative costs and benefits of each system change. This work must be done before these proposals receive policy consideration.

Research Priorities

The *Third Annual Review and Research Plan* concludes by providing a list of research priorities that HEQCO will follow up on over the next 12 months. We plan to initiate projects to mine data in order to fully understand the challenges facing the postsecondary education system, to further explore student engagement and learning quality, and to analyze the costs and benefits of system change options.

Preface

Reaching Higher (Government of Ontario, 2005a) introduced a comprehensive plan for Ontario's postsecondary education (PSE). It set out broad goals for the sector: that it be accessible, that it be of high quality, and that it be accountable. It listed general objectives under each of the goals and, for a few of the objectives, set specific targets. It announced new policy initiatives aimed at improving student financial assistance. Finally, it injected new funds into the PSE system in support of these objectives.

The funding commitment in *Reaching Higher* ends in 2009-10, and a new fiscal framework is required. The need for a successor strategy extends beyond fiscal considerations, however. The current tuition framework also ends this year, as do the Multi-Year Accountability Agreements (MYAAs). New PSE priorities have appeared, the most obvious being the contribution the sector can make to the province's knowledge and skills strategy. This link to labour market outcomes was present in *Reaching Higher*, but it has taken on increased salience in the face of the current severe recession and the anticipated economic restructuring.

This report is HEQCO's contribution to the discussion on a new PSE strategy for Ontario.

We believe that a new strategy should build directly on *Reaching Higher*. While not without its (inevitable) critics, *Reaching Higher* was generally well received both by the PSE sector and by the public. The objectives accord generally with basic Ontario values and aspirations. Since its announcement in 2005, the provincial government, postsecondary institutions, and other stakeholders have devoted considerable effort to implementing *Reaching Higher*. Some progress has been made in realizing the objectives, although much work

remains. Thanks to investments in research and policy development, we now have a clearer picture of how this further work should proceed.

We propose the following reformulation of PSE system objectives, one we believe retains the essential features of *Reaching Higher* while incorporating the increased emphasis on aligning the PSE sector with the economic and social needs of the new economy:

1. **Human Capital:** Ensure Ontario has the human capital required to compete and prosper in a global knowledge-based economy.
2. **Accessibility:** Make postsecondary education accessible to all qualified Ontarians.
3. **Educational Quality:** Ensure postsecondary education and training programs prepare students for success in life.
4. **Research and Innovation:** Enhance the sector's capacity for research and innovation.

We discuss the first three objectives in the first three chapters, building on our earlier reviews (HEQCO, 2007, 2009). In each case, we seek to determine how Ontario's PSE system is performing relative to expectations. Where performance falls short of expectations, we look at what actions—government policies or otherwise—are suggested. We include research and innovation as a goal because of the obvious fit with the province's economic future, and because discovery is an essential part of the missions of Ontario's universities and, increasingly, of colleges. We expect to report on this topic in future annual reviews.

In chapter 4, we sketch out an accountability framework that will best support a new PSE strategy. The framework we recommend has three components—system

accountability, institution accountability, and planning. We also begin the task of populating this framework with performance indicators, although we readily acknowledge that this remains a work in progress.

In chapter 5, we turn to the supply side with the premise that the PSE system must be structured and supported in a manner that takes maximum advantage of institutional autonomy yet ensures that system-level objectives are achieved. We ask whether Ontario's PSE system, as currently structured, is capable of meeting this criterion. If not, what changes should be considered in the design of the system?

Readers will see throughout this review that the analysis is often incomplete. Several key concepts, such as how to define and measure learning quality have yet to be developed fully, and missing data is a frequent problem. In such instances, we pay particular attention to research HEQCO has underway to fill gaps in our knowledge and understanding of both performance and policy responses.

We recognize that the need for a new PSE strategy comes at a time when the province faces significant fiscal challenges. The projected deficit for 2009-10 is \$24.7 billion, up significantly from earlier estimates. This fiscal situation reduces the government's ability to underpin a new strategy with a significant cash infusion as it was able to do with *Reaching Higher*. But this consideration should be allowed to dictate only the phasing in of a new plan; the design itself should reflect the province's long-term goals and objectives.

PSE enrolment in Ontario has grown significantly in recent years, as we note in section 1.1,² but this record is only meaningful when put into context. Is enrolment growing by enough to provide the province with the requisite supply of human capital? We address this question in section 1.2. Do postsecondary graduates have the knowledge and skills that align with the needs of the new economy? This is the topic of section 1.3.

1.1 | Enrolment

Figure 1.1 shows total full-time equivalent (FTE) college enrolment and the annual percentage change for the period 1991-92 to 2008-09, the latest data available at the time of writing (December, 2009). Total FTE enrolment was 193,420 in 2008-09, compared to 182,404 in 2004-05, and just below 150,000 in 1991-92. Enrolment increases were particularly large in 1992-93, 2002-03, and 2008-09, and were slightly negative in 1996-97, 1999-2000, 2000-01, and 2006-07.

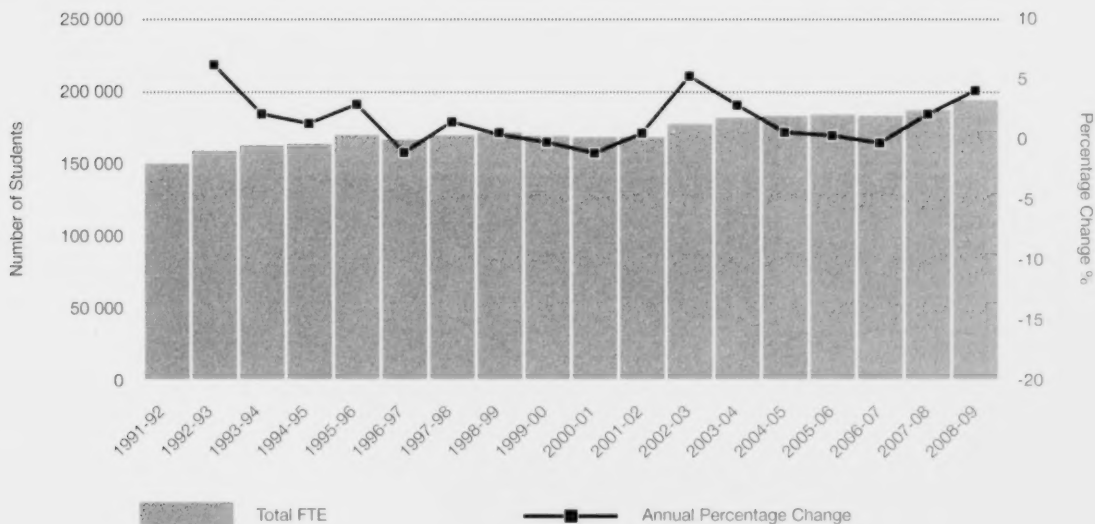
Figure 1.2 shows total university FTE enrolments and annual percentage changes for the period 1991-92 to 2008-09. Total enrolment in 2008-09 was nearly 364,000 students, compared to 330,374 in 2004-05 and 263,467

in 1991-92. Enrolment declined slightly between 1993-94 and 1997-98, but increased significantly thereafter. The bulge in 2003-04, the year of Ontario's double cohort of secondary school graduates, is particularly striking.

Reaching Higher made special mention of expanding graduate enrolment, as noted above. Figure 1.3 shows the annual percentage change in total undergraduate and graduate enrolment between 2000-01 and 2008-09. Undergraduate enrolment grew, but at a declining rate from the peak double cohort year of 2003-04 to 2006-07; it declined absolutely in 2007-08 and rose slightly in 2008-09. Graduate enrolment also grew at a declining rate from 2002-03 to 2005-06, but increased dramatically thereafter—by 6 per cent in 2006-07 and by nearly 18 per cent in 2007-08 before falling back to 6 per cent in 2008-09.

FIGURE 1.1
Total FTE College Enrolment and Annual Percentage Change, Ontario, 1991-92 to 2008-09

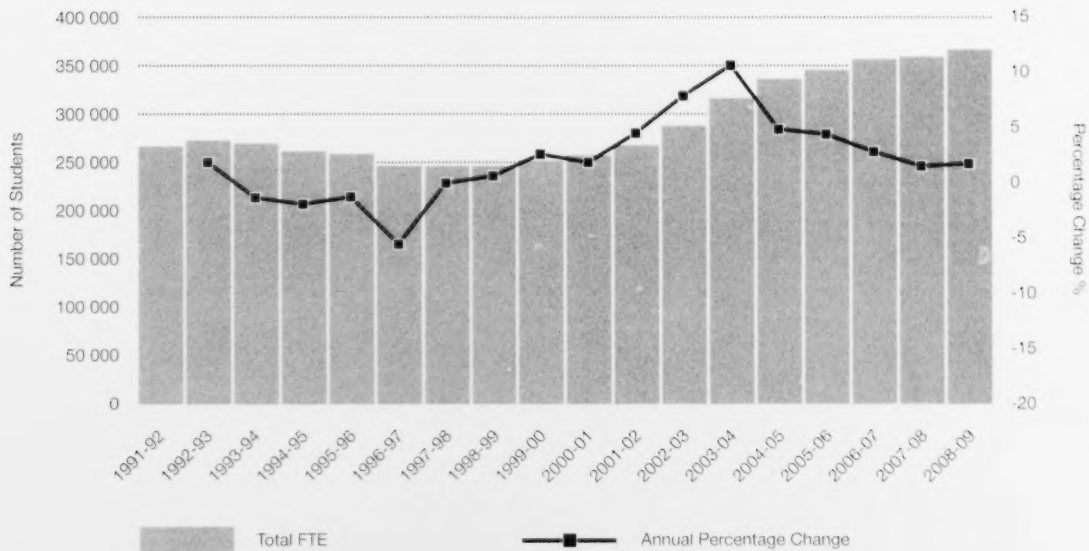
Source: Ontario Ministry of Training, Colleges and Universities



² Our mandate does not extend to private career colleges.

FIGURE 1.2**Total FTE University Enrolment and Annual Percentage Change, Ontario, 1991-92 to 2008-09**

Source: Ontario Ministry of Training, Colleges and Universities

**FIGURE 1.3****Annual Percentage Change in FTE University Enrolment, Undergraduate and Graduate, Ontario, 2000-01 to 2008-09**

Source: Ontario Ministry of Training, Colleges and Universities

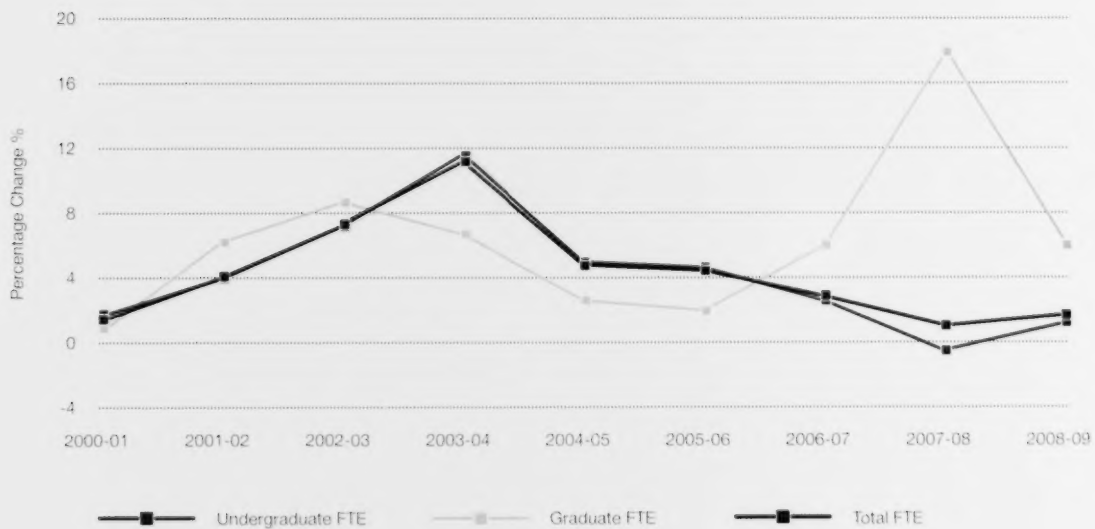
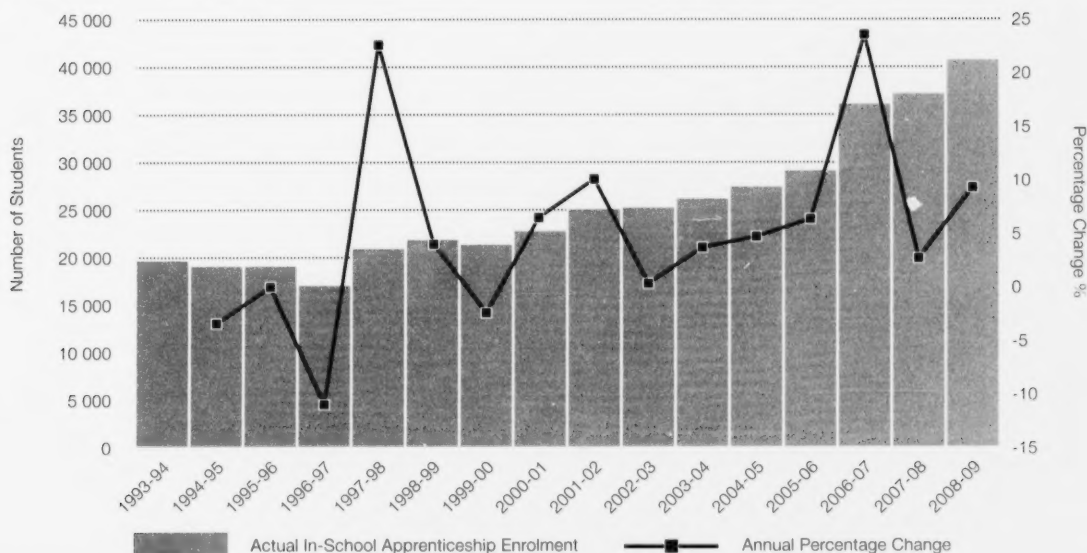


FIGURE 1.4

Actual In-School Apprenticeship Enrolment by Fiscal Year and Annual Percentage Change, Ontario, 1993-94 to 2008-09

Source: Ontario Ministry of Training, Colleges and Universities



Note: Individuals may be in-class at multiple points during their apprenticeship training, and thus counted in multiple fiscal years, but are only counted once per session even if the session overlaps with fiscal years.

Figure 1.4 shows the total of actual in-school apprenticeship enrolment in Ontario and the annual percentage changes for the period 1993-94 to 2008-09. Actual enrolment was just under 20,000 in 1993-94 and declined over the next three years. The number began to increase again in 1997-98 and has grown more or less continuously since.

1.2 | Human Capital Supply

Enrolment in Ontario's postsecondary education system is clearly growing. But this record must be put into proper perspective: is total enrolment growing by enough to provide the province with the requisite supply of human capital?

To answer this question, we need a measure of human capital, and a target against which to compare Ontario's

performance. Fortunately, both requirements are readily met.

A common measure of the supply of human capital is the PSE attainment rate, defined as the percentage of the population that holds at least one PSE credential. This rate depends directly on the percentage of the population that enrolls in a postsecondary institution, and the percentage of those enrolled that graduate.

When used to project the future supply of human capital, the attainment rate refers to the percentage of the population expected to receive a PSE credential. In principle, this definition could apply to population of any age. In practice and for planning purposes, it is useful to focus on the population cohort where PSE participation is concentrated, namely those aged 18-24.³

Our *Second Annual Review and Research Plan* (HEQCO, 2009) suggested two types of targets or benchmarks

³ We refer to the cohort aged 20-24 when using census data. This definition omits PSE credentials earned by Ontarians aged 25 and over, including those from all types of adult education. This restriction does not deny that these investments can benefit the individuals concerned and the province as a whole. The range of educational options is sufficiently large and diverse, however, that it warrants its own focus.

for assessing Ontario's supply of human capital. One approach is to compare Ontario to other provinces and to OECD countries. The expectation is that Ontario should rank first among provinces and compare favourably to other advanced economies.

The other approach is to compare the rate at which Ontario is producing PSE graduates with the projected share of new jobs expected to require higher education. The *Second Annual Review and Research Plan* (HEQCO, 2009, p. 20) drew on recent Canadian and international research to suggest that at least two-thirds of new jobs created to 2015 will require PSE.

1.2.1 | Current PSE Attainment

Most of the human capital that will be available to the province in the next two decades is already in place, in the form of the PSE credentials held by Ontarians in the workforce now and who will likely be there for some

time. Thus, it is useful to begin with a snapshot of the educational attainment of the current population.

There is no obvious age range for the working-age population, particularly with the end of mandatory retirement, but it is convenient to define it for our present purposes as the population aged 25-64. Ideally, the measure would include all PSE attainment, recognizing that many Ontarians hold more than one PSE credential. Often, however, the only information available is for highest educational attainment.

Figure 1.5 shows the educational attainment of the Ontario population aged 25-64 in 2006. Of the total population in this age cohort, 26 per cent claimed a university certificate or degree at or above the bachelor's level as their highest educational attainment while another 5 per cent reported a university certificate or diploma below the bachelor's level; 22 per cent of the

FIGURE 1.5
Highest Educational Attainment for Ontario Population Aged 25-64, Ontario, Percentage Distribution

Source: 2006 Canadian Census, Statistics Canada

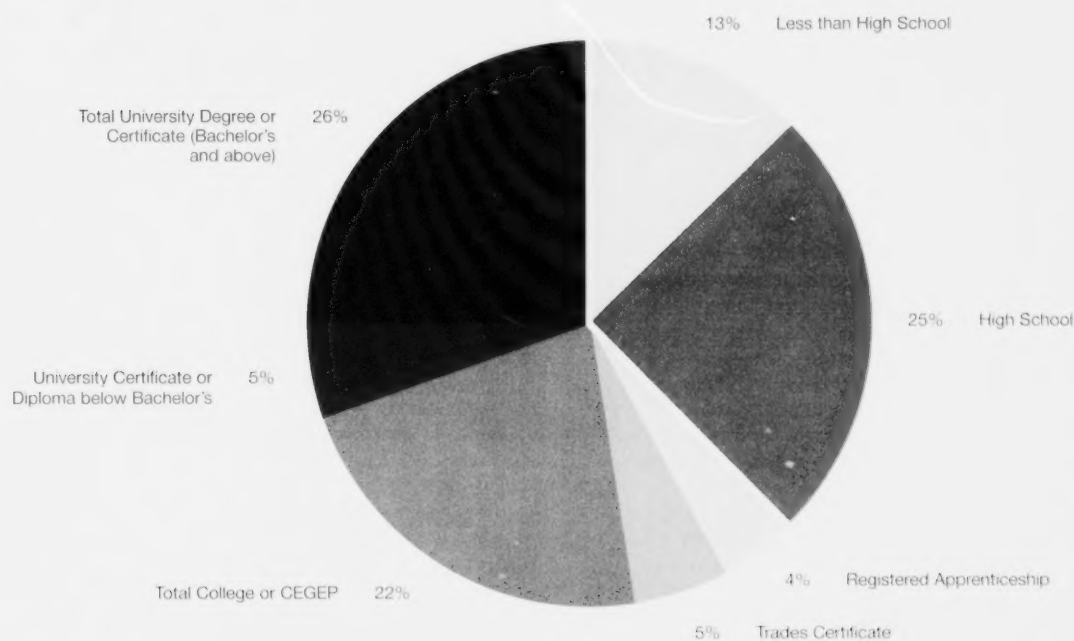
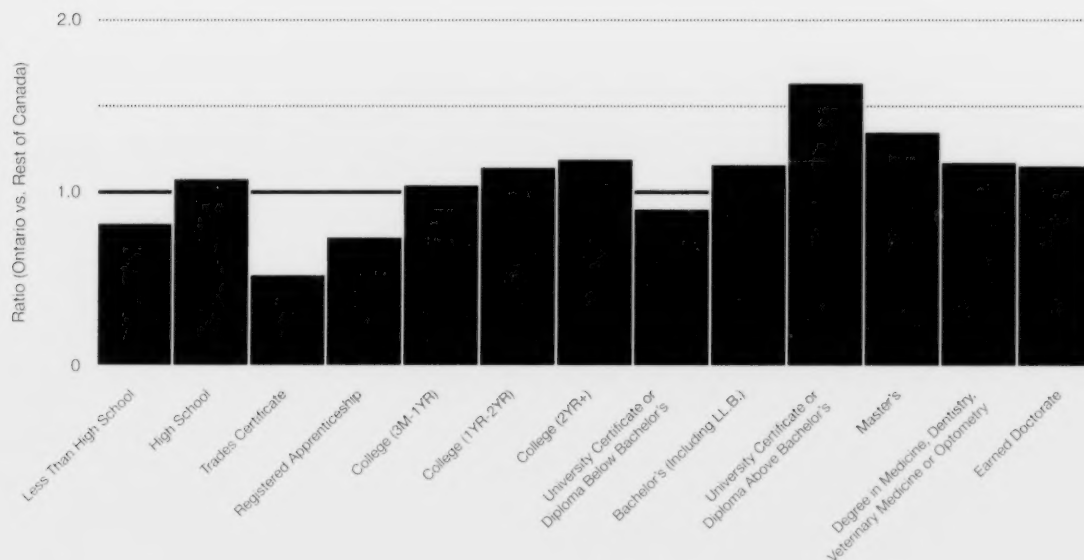


FIGURE 1.6

Ratios of Highest Educational Attainment for Population Aged 25-64, Ontario to the Rest of Canada, 2006

Source: 2006 Canadian Census, Statistics Canada



population listed a college or other certificate or diploma; 3 per cent held a registered apprenticeship and 5 per cent held a certificate in one of the crafts or trades.

Figure 1.6 shows that Ontario's highest educational attainment in 2006 was first among all Canadian provinces in terms of university attainment, near the average for the rest of Canada in the percentage of the population reporting college or other non-university attainment, and below the average for the population with a registered apprenticeship and trades certificate.

Immigration and in-migration from other provinces continues to play a major role in explaining Ontario's standing relative to the other provinces. Nearly 30 per cent of the province's supply of human capital in 2006 was embodied in immigrants and migrants to Ontario from other provinces. British Columbia is the only province that compares to Ontario in terms of the relative contribution of immigration to the aggregate educational attainment of the population (HEQCO, 2009).

Canada is a very small economy in a very large world, however, so it is essential to put Ontario's position

into international perspective. Figure 1.7, comparing Canada, Ontario, the other provinces, and other OECD countries in 2007, shows the percentage of the population aged 25-64 with university as their highest educational attainment. Canada ranks fifth in this group of countries—after Norway, the United States, Netherlands, and Iceland. Ontario, with the highest university attainment record in Canada, ranks below only Norway, the United States, and Netherlands.

Figure 1.8 focuses on more recent trends, showing university attainment for the two youngest population cohorts, 25-34 and 35-44. In this ranking, Canada's relative standing slips compared to that for the entire working-age population, but Ontario retains its leading position. The province is tied for fourth with New Zealand in university attainment for the cohort aged 25-34, behind Norway, Netherlands, and Korea. It ranks fourth with Korea for the cohort aged 35-44, behind Norway, the United States, and Iceland.

Figure 1.9 shows the percentage of the population aged 25-64 with non university higher education.⁴ Canada's well-known leading position in this category

⁴ We repeat the caution noted in the *Second Annual Review and Research Plan* (pp. 22-23) about the comparability of international data for the non-university sector.

FIGURE 1.7

Percentage of Population Aged 25-64 with a University Credential, Canadian Provinces and OECD Countries, 2007

Source: Education Indicators in Canada: An International Perspective, August 2009, Statistics Canada, Catalogue no. 81-604-X

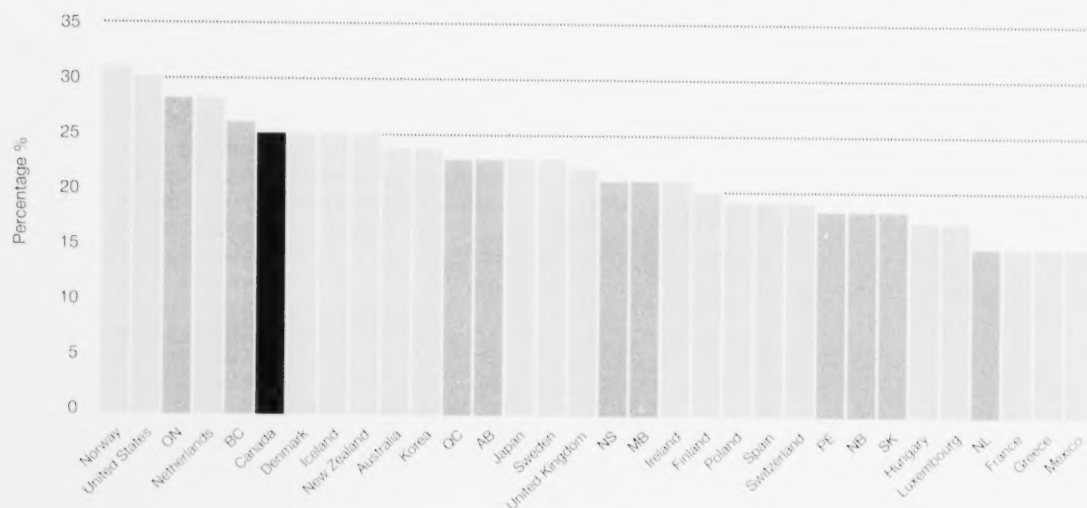


FIGURE 1.8

Percentage of Population Aged 25-34 and 35-44 with a University Credential, Ontario, Canada and OECD Countries, 2007

Source: Education Indicators in Canada: An International Perspective, August 2009, Statistics Canada, Catalogue no. 81-604-X

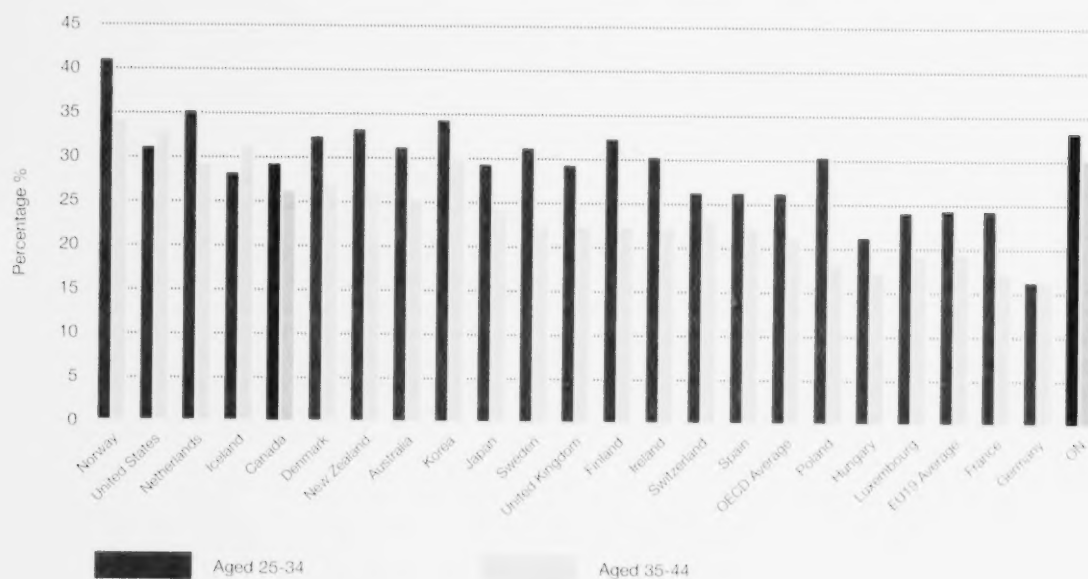
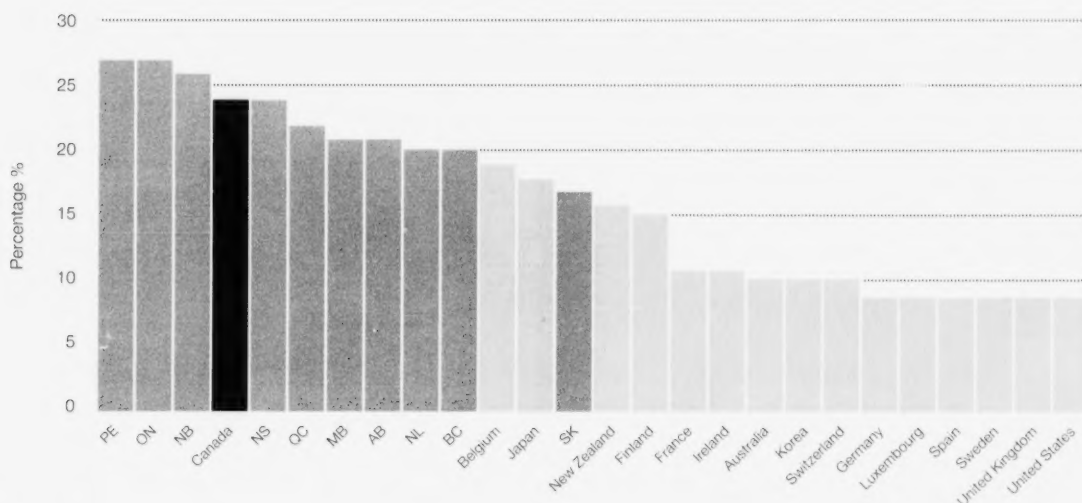


FIGURE 1.9

Percentage of Population Aged 25-64 with a Non-University Postsecondary Education Credential, Canadian Provinces and OECD Countries, 2007

Source: Education Indicators in Canada: An International Perspective, August 2009, Statistics Canada, Catalogue no. 81-604-X



is clearly evident in the graph. The attainment figure for Canada is 24 per cent compared to 19 per cent for the next-highest country, Belgium. Ontario exceeds the national average and all other provinces except Prince Edward Island (PEI).

This same pattern holds for the younger population cohorts. Ontario ranks third behind New Brunswick and PEI for those aged 25-34, and ranks second with New Brunswick behind PEI for those aged 35-44. Again, the numbers for other countries are substantially lower.

1.2.2 | Projected Future PSE Attainment

This attainment record reflects decisions already made by Ontarians and by migrants and immigrants to the province. For planning purposes, however, the key variable is the rate of new human capital formation. Is Ontario adding to its human capital stock at a rate sufficient to meet the emerging demands of the new economy?

A recent high-profile report expressed concern on this count. Roger Martin and Richard Florida (2009) cite Canadian and American estimates that at least two-thirds of all new jobs created between 2006 and 2016 will require some postsecondary education. They compare this figure to the reported 40 per cent of Ontarians aged

18-24 who were registered in college or university in 2007, and conclude that the province needs to step up significantly participation rates in postsecondary education.

The point was repeated in a *Toronto Star* editorial (28 February 2009). Speaking about opportunities in the 2009 Ontario budget, the editors advocate making it easier for Ontarians to get a postsecondary education, claiming parenthetically that only 40 per cent do so now. These views fail to distinguish between participation and attainment rates, and thus understate the rate at which Ontario postsecondary education is adding to the province's aggregate capital supply.

We have recent data on direct transition rates from high school to PSE in Ontario. King et al. (2009) used a Ministry of Education data set that contained high school records linked to college and university registration records. This linking showed that in 2006 at the end of five years of secondary school, 60 per cent of students were enrolled in postsecondary education programs—34 per cent in university, 20 per cent in college, and 6 per cent in apprenticeships.

We know from the *Labour Force Survey* that 41 per cent of Ontarians aged 20-24 were enrolled in PSE in 2006, of which 28 per cent were in university and 13 per

cent were attending college. There are no comparable data for Ontarians enrolled in trade or apprenticeship programs. We also know from the 2006 Census that 40 per cent of Ontarians in the same age cohort (20-24) had already graduated from a PSE program. Eighteen per cent were college graduates; 18 per cent were university graduates; 4 per cent had a trade or apprenticeship certificate.

It is tempting to conclude from these numbers that the final PSE attainment rate of Ontarians who were between the ages of 20 and 24 in 2006 will be over 80 per cent. But this simple calculation ignores double counting. Some proportion of those reporting a college certificate or diploma will also be registered in another college program or a university program.⁵ The calculation also ignores the fact that some proportion of those enrolled in college or university programs in 2006 will not complete them.

Although we cannot be certain what the eventual PSE attainment rate for Ontarians aged 20-24 in 2006 will be, it is possible to narrow the range considerably. It is reasonable to assume that Ontarians aged 25-34 have largely completed PSE. Over two-thirds of this group reported a PSE credential—6 per cent in apprenticeship or trades, 24 per cent with a college certificate or diploma, and 37 per cent with a university certificate, diploma, or degree. Participation rates have risen in recent years, meaning that PSE attainment for the cohort aged 20-24 will be higher than for the cohort aged 25-34, so the two-thirds figure can serve as a lower bound for the estimate.

The Youth in Transition Survey (YITS) provides direct information on PSE decisions and outcomes. Participants in YITS-B were first surveyed in December 1999 when they were 18-20 years old. They were surveyed about their status again in 2002, 2004, and 2006. These data thus provide a direct measure of choices that students have made over time.

Figure 1.10 shows the YITS results for Ontario. Of the respondents, 83 per cent attended PSE and 17 per cent did not. Of those attending PSE, slightly over half went to university, 40 per cent attended college, and 9 per cent attended other postsecondary institutions. Fourteen per cent of those enrolled dropped out, 61 per cent graduated but continued no further, 14 per cent

graduated and continued on in another program, and 11 per cent were still completing their programs when surveyed in 2006. These data suggest that the PSE attainment rate for Ontario is 71.4 per cent (83% times 86%), or slightly lower if some of those who continued do not actually complete their studies.⁶

Putting this information together, we can bracket the probable PSE attainment rates for the cohort of Ontarians aged 20-24 in 2006. It is not likely to be lower than the 67 per cent rate for the group aged 25-34, and it is likely below 80 per cent because this figure ignores double-counting and drop outs. The YITS figure of approximately 70 per cent falls into this range.

As we noted earlier, the educational attainment of immigrants typically exceeds that of non-immigrant Canadians. Ontario will likely remain a main destination of immigrants to Canada, which will add to the province's future PSE attainment rates.

1.2.3 | Observations

We are now in a position to answer the question posed at the outset of this chapter. Is Ontario producing enough PSE graduates?

PSE attainment for Ontario's population of working-force age (25-64) is first among the provinces and compares favourably to that of OECD nations. The expected PSE attainment rate for the majority of new domestic entrants to the labour force—the population aged 18-24—is in the order of 70 per cent, which is commensurate with the expected proportion of new jobs requiring some type of postsecondary education and training. New immigrants to Ontario will add to these educational attainment figures. By these benchmarks then, Ontario appears to be meeting its human capital aggregate supply needs.⁷

It is not clear what the future holds for Ontario, however, considering the uncertainties on both the demand and the supply sides.

On the demand side, future growth in PSE attainment rates will have to come disproportionately from the groups traditionally under-represented in PSE. What is required to increase participation and completion rates of these individuals? This is the topic of chapter 2.

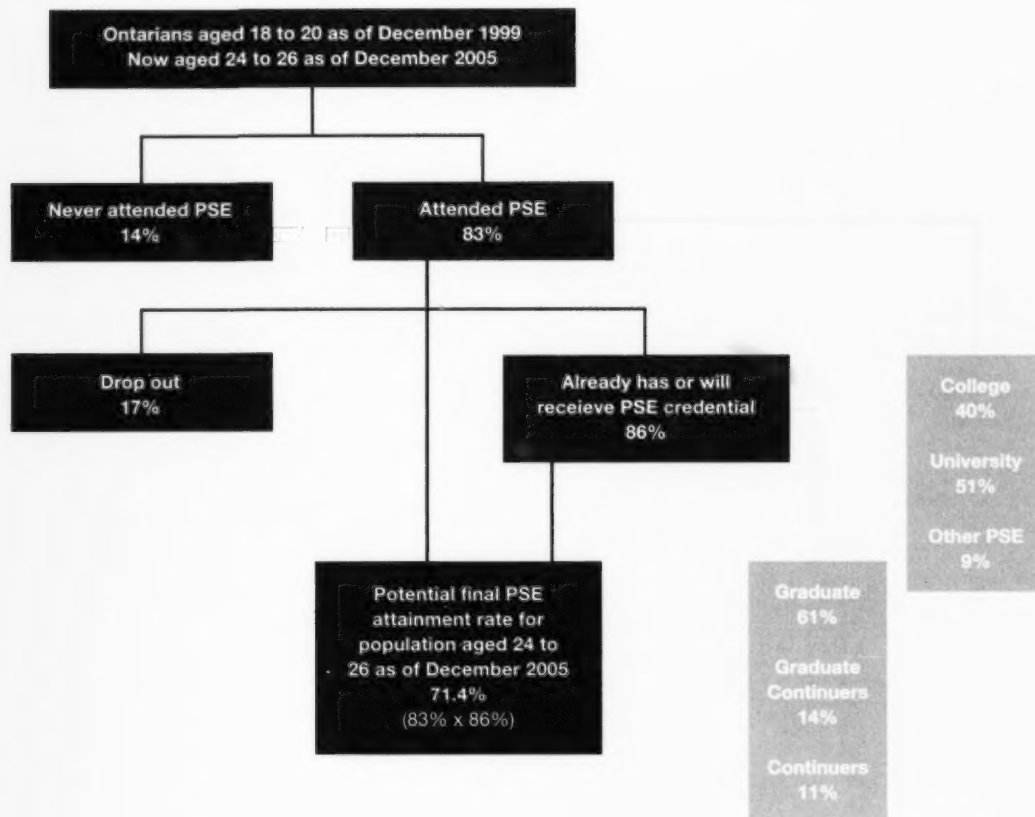
5 But they are adding to the human capital supply by completing a second credential, so arguably double counting is not an issue.

6 Survey response rates in the YITS fall over time. If those continuing in postsecondary education are more likely to respond than those not continuing, these numbers will be biased upwards.

7 It is possible, of course, that these targets will increase over time.

FIGURE 1.10**PSE Attainment Rate for Ontario Youth Aged 18-20 from YITS-B data, 2006**

Source: Derived from Shaerik, Danielle and Gluszynski, Tomasz (2007) Participation in Postsecondary Education: Graduates, Continuers and Drop Outs, Results from YITS Cycle 4 (Statistics Canada: 81-595-ME2007059)



On the supply side, the great uncertainty is Ontario's capacity to accommodate additional demands for undergraduate degree programs, particularly in the Greater Toronto Area (GTA). This is the topic of chapter 5.

1.3 | The Knowledge and Skills Mix

Achieving aggregate supply targets is a necessary but not a sufficient condition for meeting the province's human capital requirements. Another question is

whether Ontario PSE graduates have the knowledge and skills appropriate for the new economy.

There is some concern that Ontario's PSE system is not sufficiently responsive to the province's current and emerging labour market needs.⁸ There are two ways to interpret this critique. One view is that PSE institutions are not sufficiently oriented to the labour market when designing, and delivering programs. This comment is most frequently directed at universities, and is accompanied by a recommendation that they incorporate more applied or experiential education into their curricula.

8. Concern over the composition of PSE graduates is not just an Ontario phenomenon, however. See Lennon (2010b) for international references.

The other interpretation is that PSE enrolment patterns are not aligned with labour market needs. To some observers (Colleges Ontario, 2008a, 2009a; Conference Board of Canada, 2007), the problem is a shortage of skilled workers in the trades. To others,⁹ the challenge is to increase the relative supply of so-called STEM graduates, that is, the students enrolled in science, technology, engineering, and mathematics. A corollary of this argument is that the system is producing too many baccalaureate degrees, particularly in the liberal arts. Yet others (Institute for Competitiveness and Prosperity, 2007) advocate increasing the absolute and the relative supply of students attaining graduate degrees, especially in the Business areas.

In this section, we look first at how one might identify and measure knowledge and skills imbalances, and then at the evidence for both Canada and Ontario. Unfortunately, as we shall show, the evidence is inconclusive. We therefore end with a brief overview of HEQCO research underway to address the issue more conclusively.

1.3.1 | Identifying and Measuring Knowledge and Skills Imbalances

In the most general terms, misalignment means a mismatch between the demand for skill sets and the supply of those skill sets. The mismatch can be one where employers cannot locate enough workers with the skills they require at the compensation rates they are offering. Conversely, it may be a situation wherein workers are not able to find employment in occupations that normally require their skills at compensation rates they are expecting.

On the demand side, employers require two types of knowledge and skill sets in their workforce. The first type is specific knowledge and skills such as writing computer code or developing interior designs. The other type is general knowledge and skills: an ability to communicate orally and in writing, to work in teams, to possess cultural awareness, and so forth.

The mix and level of skill sets in demand at any moment depends on the industrial structure of the provincial economy. Ontario's occupational mix understandably will differ from Alberta's. Further, the occupational mix for any province will change as its economy evolves. This is the situation in Ontario currently as traditional industries adjust to rising exchange rates, new competitors, and to new technologies.

On the supply side, workers acquire skill sets through education and on-the-job training. Those completing secondary school and opting for further education have an array of options to choose from. At the most general level, they can apply to a trade or apprenticeship program, a college or other non-university institution, or a university. The PSE application will be for a specific credential, which can range from a short term diploma or certificate to a four-year degree. At some point in their program, they will specify a field of study. Some individuals will decide to add a second PSE credential before entering the workforce, a choice that could see them moving from college to university or vice versa.

Students select the type of postsecondary institution, the length of program, and the field of study according to the skill set they are seeking. Some programs such as dentistry or carpentry offer very specific knowledge and skill sets, although increasingly these programs incorporate general skills as learning outcomes. Undergraduate arts and science programs, on the other hand, focus relatively more on providing general knowledge and skills.

Investing in education of any type is costly. There are direct costs such as tuition and fees plus the opportunity costs of not working. Thus, non-economic motives aside, individuals will need to be induced to invest in education by the prospect of higher life-time incomes, meaning higher wages and lower unemployment rates. These returns will be higher for costly programs, such as those of long duration or those with relatively high tuition and other fees.

Labour market mismatches are inevitable in a dynamic economy. Changes in technology or in the terms of trade constantly alter the demand for particular types of knowledge and skills, while retirement patterns and immigration regularly affect the supply. The real issue is whether imbalances are resolved quickly and effectively through normal adjustment mechanisms, or whether the processes are so lengthy and costly that policy intervention is required.

Take the example of a situation of excess demand in a particular occupation. The first effect is a fall in the relative unemployment rate for that occupation as employers hire additional workers. Eventually, there will be an increase in relative wages as competition heats up for employees with the requisite skill sets.

9 See Lennon (2010a, b, c) for references.

The rise in relative wages initiates adjustments on the part of both employers and workers. On the demand side, employers (or some portion of them) respond to rising relative wages by looking for alternative sources of skill sets. They have two possibilities. They can promote employees who do not have the formal education qualifications but who are judged to be capable of filling the positions nonetheless, a process known as vertical mobility. Or, they can hire people with different education profiles but who offer similar skill sets—perhaps substituting between college and university graduates, for example, or among fields of study. This latter phenomenon is known as horizontal mobility.

The greater is the ability of employers to find substitutes for knowledge and skill sets in scarce supply, the less likely will situations of excess demand persist. This feature points to the importance of articulating and publicizing expected learning outcomes for PSE programs.

On the supply side, workers and students (or some portion of them) will alter their educational choices in response to relative changes in expected earnings. Some secondary school students may opt for postsecondary education upon graduation in place of going directly to the labour force. Other graduates, already committed to PSE, may change their intended destination from college to university or from university to college. Others may switch their program choice, opting for engineering instead of science for example. Yet another type of adjustment is to pursue a professional or graduate degree.

Switching educational choices in this manner can happen only if institutions are able and willing to adjust admission and program offerings appropriately. This adjustment can involve admitting more students overall or altering the admission levels for specific programs.

The adjustment process works in the opposite direction for situations of excess supply. The initial signals are increases in relative unemployment rates and declines in relative wages. Employers opt for relatively cheaper workers where possible, and students turn away from occupations with relatively falling wages.

The more responsive students are to changes in economic outlooks in various professions,¹⁰ and the more responsive institutions are to changes in application patterns the less likely are situations of excess demand

to persist. These features point to the importance of making labour market information available to students in a clear and transparent manner, and of facilitating the abilities of colleges and universities to adjust in a fashion to shifts in program application trends.

The foregoing discussion suggests two ways to look for evidence of skills imbalances. The first is to survey postsecondary graduates and their employers. Do graduates believe that their education prepared them for employment in the new economy? How satisfied are employers with the knowledge and skills of their recently hired employees?

The second approach is to examine changes in relative unemployment and wages over time. An increase in demand for workers with a particular skill set that is not matched in due course by an increase in the supply of workers with those skills will be reflected in one or both of an increase in relative wages or a fall in relative unemployment rates. A decline in the supply of workers who have a particular skill but no corresponding decline in demand for such workers will have a similar outcome. The converse interpretations hold for declines in relative wages or increases in relative unemployment rates.

1.3.2 | Survey Evidence

We have extensive survey information aimed at evaluating how well Ontario colleges prepare their graduates for the labour market. The *Graduate Satisfaction Survey* reports on students six months after graduation. Four categories of graduates can be created from the survey responses: employed, not employed but actively looking for work, in another full-time PSE program, and not in PSE and not looking for work. The response rate varies between 70 per cent and 75 per cent.

Employed graduates in the sample are presented with a list of 18 skills and abilities. They are asked how important they believe each item is to performing their job and how satisfied they are with their educational preparation for the item in question. A summary question (#33) asks "How would you rate your overall satisfaction with the college preparation for the type of work you were/are doing?"

Figure 1.11 shows the percentage of respondents over the period from 2002 to 2007 who replied that they were "satisfied" or "very satisfied" with their career preparation. The response was just under 84 per cent in 2002, rising to nearly 86 per cent in 2007. The two

10 A recent paper by Gunderson and Krashinsky (2009, November) finds that prospective students do choose fields of study in part on the basis of earnings they can expect to receive in those fields. The data source is the National Graduate Survey (NGS).

lighter lines depict a 95 per cent confidence interval, that is, there is a 95 per cent chance that the gap between the two lines contains the true population mean. The value for the standard deviation fell slightly over the period, indicating that the spread of responses tightened slightly.

The *Employer Satisfaction Survey* presents employers¹¹ with the same list of 18 skills and abilities, and asks them to indicate the importance of each to performing an employee's work. They are then asked to indicate how satisfied they are with the educational preparation of the employee for each of these skills and abilities. A summary question (#74) asks "In general, how would you rate your satisfaction with this employee's overall college preparation for the type of work he/she was doing?"

Figure 1.12 shows the percentage of employers surveyed between 2002 and 2007 who were "satisfied" or "very satisfied" with the skills and abilities of their college graduate employees. Nearly 92 per cent fall into this category in 2002, rising to over 93 per cent by 2007. Once again, the spread of the responses is very tight and becomes slightly more so over the period. These summary results suggest that both graduates and employers feel that Ontario's colleges are providing graduates with skills and abilities commensurate with labour market needs.

Internal HEQCO research (McCloy & Liu, forthcoming) has explored the variation in the graduate satisfaction survey results. Simple associations reveal that satisfaction responses vary with age, gender, college size, region, field of study, credential awarded, and current status (returned to study, working in a related field, neither studying nor working).

There is considerable overlap among these variables, however, so the authors used regression analysis to sort out the respective influences. The results show that overall graduate satisfaction increased between 2002 and 2007 and that college size and region had no significant effect on those rates. Graduates in the Health Sciences fields were the most satisfied, after standardizing for all other influences. Certificate-holders having graduated from one-year programs were more satisfied than those with other credentials. Not surprisingly, graduates working at jobs related to their fields of study were the most satisfied, and those

working at jobs unrelated to their fields of study were the least satisfied.

These results reinforce an important point. The graduation satisfaction survey results are relevant and important information for planning purposes, but they must not be used to rank institutions as they have little to no control over some correlates. Where they might exercise some control, such as the characteristics of the students they admit, the types of distortions that could be introduced by rankings are best avoided.

McCloy and Liu go on to examine the determinants of employment rates of college graduates. As with satisfaction scores, they use regression analysis to sort out the separate influences of personal, program and region variables. They find that being male and being older had negative effects on employment rates. Region mattered as well: graduates of colleges located in southwestern, central, and eastern regions of Ontario were more likely to be employed than those in Metro Toronto or in the northern region. Field of study also mattered with graduates from health, community service, and hospitality fields, who were more likely to be employed than those in business fields (the reference group). The length of program of study had a positive effect on employment rates.

As another example of research underway, HEQCO researchers used factor analysis to group the 18 skills and abilities questions into five clusters: preparations for a specific job, numeracy, personal/interpersonal skills, communication skills, and critical thinking/problem solving/information management. It will be interesting to examine the relative contributions of these knowledge and skills clusters to overall satisfaction with career preparation. Results will be reported in future HEQCO research notes.

1.3.3 | Evidence From Labour Market Outcomes

The evidence linking PSE attainment to labour market outcomes is available mainly at the national level, given data limitations—although it is possible to draw some inferences for Ontario.

National Outcomes

There is clear evidence that labour market outcomes vary systematically with education levels (Boothby & Drewes, 2006; Hansen, 2006, 2007; Lapointe et al., 2006). University graduates have the highest average

11 Employees must give permission to contact the employer, so there may be an upward bias in the responses.

Chapter 1

Human Capital

In *Ontario: A Leader in Learning—Report and Recommendations*, the Honourable Bob Rae (2005) identified postsecondary education as key to the future economic success for individual Ontarians and for the province as a whole. This position was restated in the Ontario Budget Backgrounder, *Reaching Higher* (Government of Ontario, 2005a, p. 11) as: “The brains and know-how of a skilled workforce are the competitive edge of the 21st century.”

One general objective was to “significantly increase enrolment in colleges and universities.” Other targets were more specific. Thus there were to be 12,000 more graduate students in 2007-08, and 14,000 more by 2009-10;¹ medical education spaces were to be expanded by 15 per cent; and the annual number of new entrants into apprenticeship programs was to increase by 7,000, reaching 26,000 in total by 2007-08.

1 The provincial government announced in 2009 that an additional 1,300 spaces would be created by 2011-12 (COU, 2009a).

FIGURE 1.11

Percentage of Ontario College Graduates "Satisfied" or "Very Satisfied" with Their College Education for Career Preparation, 2002 to 2007

Source: Ontario Ministry of Training, Colleges and Universities, Graduate Satisfaction Surveys

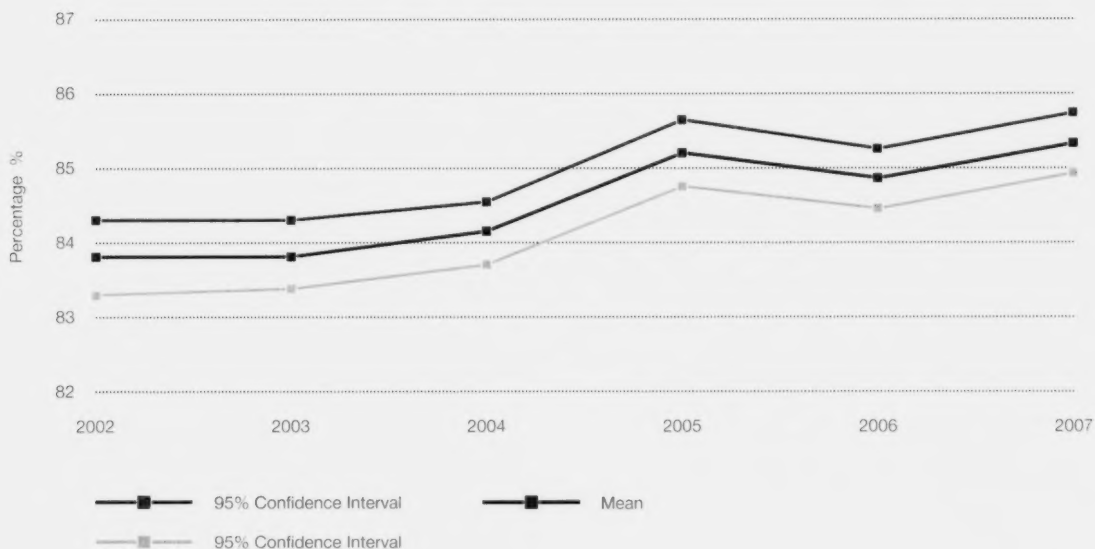
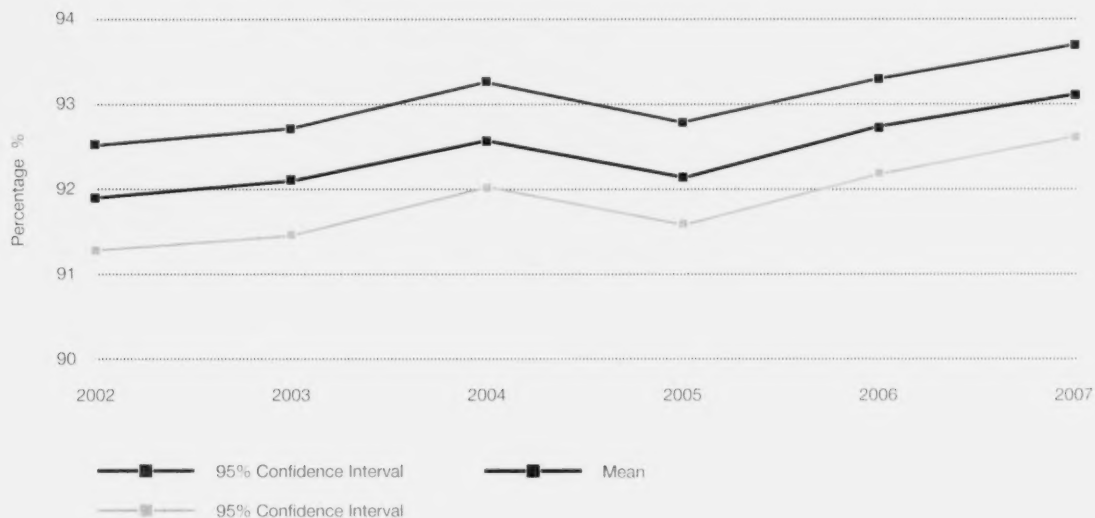


FIGURE 1.12

Percentage of Employers "Satisfied" or "Very Satisfied" with the Skills and Abilities of Employees Graduating from Ontario Colleges, 2002 to 2007

Source: Ontario Ministry of Training, Colleges and Universities, Graduate Satisfaction Surveys



earnings, followed by college graduates. Workers with a trade certificate earn less on average than college graduates, but more than those with only a high school diploma. High school drop outs, not unexpectedly, have the lowest wages. A surprising result reported by Boothby and Drewes (2006) is that there is no apparent earnings benefit from combining college and university credentials.¹²

There are also notable differences in returns to education across fields of study. Generally, earnings are highest for those in the professions and lowest for graduates of humanities, social sciences, and education programs. Internal rates of return vary among fields of study as well, although less than for earnings because these calculations take the relative costs of acquiring education into account. Hansen (2006, pp. 45-46) indicates that the rates of return in 2001 for females were highest for graduates in health, business and commerce, mathematics/computer/physical sciences and engineering, and lowest for fine and applied arts. Much the same pattern applies for males, the main differences being a relatively higher return for engineering and a much lower one (negative) for fine and applied arts.

These differences in earnings and labour market status are not unexpected, as noted earlier. The more interesting question for our present purposes is whether there are changes in relative values over time, because the presence or absence of clear trends would tell us about supply and demand responses to changing economic opportunities.

The evidence is mixed. Boothby and Drewes (2006) look at changes in relative earnings between 1981 and 2001. They find that men experienced an increase in the earnings premium for all educational paths. The trends for women were also positive, but more muted, perhaps explained by the very large increase in female PSE participation rates over the period. Hansen (2006) used census data to estimate rates of return between high school and university graduates. He finds a significant return to university education, and a slight increase in this return between 1991 and 2001. Using data from the *National Graduates Survey*, he finds that earnings differences between trades school/colleges graduates and university graduates decreased during the 1990s. Burbidge, Magee, and Robb (2002) also find that the earnings premium for university education decreased for

both males and females in the 1990s.

The most systematic examination of trends in education and labour market outcomes is the work by Human Resources and Skills Development Canada (HRSDC) in its periodic reports on labour market conditions in Canada. The reports attempt to identify occupations in conditions of either excess demand or excess supply currently and to project shortages and surpluses for a decade or so into the future.

HRSDC's most recent effort (October 2006) focuses on the period 2006 to 2015. They begin by looking for evidence of current mismatches by broad educational attainment category, using data on employment growth by occupation for the period 1987 to 2005. Occupations are grouped into five skill level clusters. Three are classed as high skill occupations: management, occupations usually requiring university and occupations usually requiring college or apprenticeship training. Two groups are classed as low skill occupations: those usually requiring a high school diploma and those usually requiring only on-the-job training.

The next step is to examine trends in relative unemployment rates and relative wages for these five skill clusters. These trends are relatively flat over the period 1987 to 2005, suggesting that the national labour market has not experienced sustained imbalances between demand and supply. The two exceptions to this conclusion are a slight increase over the period in relative wages for management and a small rise in the relative unemployment rate for occupations usually requiring only on-the-job training.

HRSDC provides another perspective by calculating relative wages and unemployment rates by education level for the same period. The four education levels are less than high school, high school, college and university. These data appear to show a slight increase in relative unemployment rates and a slight decrease in relative wages for individuals with less than high school and, interestingly, for university graduates.

HRSDC also looks at imbalances for specific occupations, using as evidence relative changes in employment rates, wages, and unemployment rates. They identified a number of occupations experiencing excess demand conditions, representing 11.4 per cent of total employment in 2005. They identified a much

12: Dubois (2007), using *National Graduates Survey* data, finds that labour markets do seem to reward the acquisition of previous PSE credentials. She suggests that the sequence in which the credentials are earned may be important.

shorter list of occupations experiencing excess supply conditions, representing 1.9 per cent of non-student employment in 2005.

The second part of the HRSDC analysis attempts to project labour market conditions to 2015.¹³ This exercise involves, first, projecting output growth by industry and, hence, associated demand for labour by industry to 2015. Next, the demand for labour by industry group is mapped into the demand for labour by occupation. The third projection is labour force growth by broad education level, mapped into labour supply for specific occupations. Finally, they project retirements by occupation.

Putting these data together permits a projection of potential imbalances in the Canadian labour market to 2015. They present these first for the five broad skill types noted above. Overall, the projection is for general balance between demand and supply, with perhaps a slight excess demand for management and for occupations usually requiring college education or apprenticeship training. They also provide a list of occupations expected to face excess demand pressures over the next 10 years.

Ontario Outcomes

Unfortunately, the same type of detailed analysis is not available at the provincial level. *Ontario Job Futures* (Government of Ontario, 2005b) provides information on current trends and employment prospects for 163 common occupations.¹⁴ For each occupation, it outlines selected main duties, required education and training, employment prospects, average annual income, and as well provides a short statistical profile of incumbents.

Ontario also collects and publishes annual data on employment rates for PSE graduates as part of its KPI exercise. Colleges report the percentage of graduates who are employed six months after graduation as part of the *Graduate Satisfaction Survey* referenced earlier. The province-wide employment rate for the 2007-08 graduates, the latest data available at the time of writing (December, 2009), was 88.9 per cent.¹⁵ The rates for individual colleges ranged from 84.3 per cent to 94.2 per cent,¹⁶ and the average employment rate also does not

change much over time. The lowest rate over the 10-year period from 1999 to 2008 was 87.4 per cent in 2002, and the highest was 90.5 per cent in 2007.

Ontario universities report employment rates for student six months and two years after degree completion based on an annual survey of graduates of bachelor's or first professional degree programs. The employment rate is defined as the number of employed persons expressed as a percentage of the labour force employed or unemployed but looking for work. Rates are reported separately for 15 programs, ranging from the specific (education, engineering, nursing) to the general (fine and applied arts, humanities, social sciences).

The overall average employment rate after six months for 2006 graduates was 94.1 per cent, and the rate after two years was slightly higher at 95.7 per cent.¹⁷ There is little variation in these rates over time or among institutions, although there are some differences among programs. Not surprisingly, rates are typically highest for professional programs (usually at or near 100%) and lowest for fine and applied arts, humanities, and social sciences (generally 95-96%).

Aggregate employment rate data, by themselves tell us relatively little about links between PSE attainment and labour market needs, however. To be meaningful, they have to be more detailed and put into proper perspective. For example, reporting the employment rates relative to those for persons with no PSE, standardized for age and other personal characteristics, would at least adjust for cyclical changes in the economy.

1.3.4 | Observations and HEQCO Research Underway

In sum, we do not have enough evidence to answer the second question posed at the outset of this chapter: do PSE graduates have knowledge and skills that align with the needs of the new economy? To repeat the point made above, there will always be some churn in a dynamic market economy. Therefore, there will always be accounts of employers unable to find workers with the skill sets they seek at wages they are willing to offer and of employees unable to find jobs that match their skill set at wages they are willing to accept. The more fundamental question of whether these mismatches are

13 See Canadian Council on Learning (2007) for a review of attempts to forecast labour market needs.

14 MTCU advises that a new Ontario Job Futures site will be launched shortly, with a new URL (www.ontario.ca/jobfutures). It will include profiles of 190 occupations and an employment outlook for 2009-2013.

15 Available at <http://www.edu.gov.on.ca/eng/general/postsec/colindicator.pdf>.

16 We stress that rankings are not appropriate as employment rates depend on local employment conditions, program mixes and student characteristics.

17 Available at http://www.mcmaster.ca/avpira/OSAP/OSAP_2009.html.

inherently self-correcting, or whether they are so slow and inefficient that active policy intervention is required, remains unresolved.

The national evidence on this topic is useful background information, but it is important to learn more about the Ontario situation more specifically. The province has a unique economic structure and is undergoing a significant restructuring. The PSE system is distinct as well, with the explicit division of labour between colleges and universities and the large number of institutions in each sector. HEQCO is, therefore, making research in this area a priority.

We are supporting three projects stemming from our request for proposals to explore the alignment between postsecondary education programs and labour market outcomes in Ontario. The following descriptions are taken from our website:

1. This project will examine the labour market outcomes of PSE graduates in Ontario using the *National Graduates Survey*. It will investigate whether there is evidence of a general oversupply of university and/or college graduates, as well as if the fields of study among graduates line up with labour market needs. Labour market outcomes by field of study will inform us about the relative demands in the labour market for different skill sets and the ability to observe enrolment patterns through time will indicate whether or not students and institutions are responding to changing skill requirements.
2. This project will examine the changes and challenges facing postsecondary graduates of various fields of study and program types in Ontario. The implications of the evolving "knowledge-based" economy on the school-to-work transition of recent graduates will also be explored and, more specifically, it will identify challenges faced by recent graduates in Ontario. The main source of data will be Statistics Canada's *2005 National Graduates Survey*.
3. This project will examine the issue of alignment between Ontario's postsecondary outputs and labour market demands by focusing on two questions. First, is Ontario's postsecondary sector graduating students at various levels of educational attainment in numbers appropriate to suit the demands of the labour market? Second, is Ontario's postsecondary sector graduating students with appropriate skills and knowledge to suit these demands? The issue of

alignment will be examined from a credentialist perspective by looking for differences in employment and job satisfaction rates across levels of educational attainment and from a human capital perspective by looking for differences in employment and skill utilization across fields of study.

We are also carrying out research in-house, using detailed data on PSE attainment, occupations, labour market status, and earnings from the 2006 Census. These results will be reported in future HEQCO research notes.

We are also interested in learning more about how students choose PSE sectors, institutions, and programs, and how institutions respond to changes in application patterns. A recent HEQCO paper (Dooley, Payne, and Robb, 2009) is an initial attempt to link program registrations to family income and other student characteristics. These researchers will continue this work as part of their successful response to a HEQCO call for proposals to link and then analyze secondary and postsecondary education data.

To answer this question, we need a way to measure accessibility, and we need targets or benchmarks against which to compare actual performance. Unfortunately, these requirements are not easily met.

The obvious measures are those used in chapter 1 for the supply of human capital, but the problem lies with the lack of data. There is very little reliable information on PSE attainment, participation and graduation rates for under-represented groups in Ontario. We indicated in our *Second Annual Review and Research Plan* (p. 30) that filling data gaps was a top priority. Thus, we pay particular attention in this chapter to the initiatives underway or planned to meet this need.

With respect to targets, ideally there would be no systematic differences in PSE attainment rates among demographic and socioeconomic groups. In practice, we may require a series of interim targets to achieve this long-run outcome.

The Canadian literature on accessibility is extensive¹⁸ although it is largely at the national level. This chapter begins by summarizing these findings briefly before looking at Ontario's specific situation. We conclude with an outline of the work underway to fill in the gaps in our understanding of this important policy area.

2.1 | The Canadian Literature on Accessibility

The starting point for recent accessibility research is the observation that PSE participation is positively correlated with family income. Finnie, Sweetman, and Usher (2008, p. 13) draw on YITS-A data to report that 31 per cent of young Canadians from the bottom income quintile had attended university by age 19, compared to 50 per cent from the top quintile. Berger, Motte, and Parkin (2009, p. 45) use the same data source but a different reference category to examine the postsecondary education status of Canadian 19-year-olds in 2003. They report that 46 per cent of the youth in the highest quartile of family income were university students, 31 per cent were college students, and 22 per cent were not in PSE. The corresponding figures for youth from the lowest family income quartile are 25 per cent, 36 per cent, and 39 per cent.

This gap does not appear to have changed appreciably over time. Berger et al. (2009, p. 47) use data from the *Survey of Labour and Income Dynamics* (SLID) to calculate the gap in PSE participation rates between students whose annual family income is over \$100,000 compared to those whose annual family income is less than \$25,000. The gap fluctuates between 16 percentage points (in 1995) and 31 percentage points (2004 and 2006), but the trend is flat. The gap for 2006 (31 percentage points) was nearly identical to that in 1994

(30 percentage points). Finnie et al. (2008, p. 13) also observe no change in this gap over the past decade.

Federal and provincial governments have responded to the evidence of this link between PSE participation and income by introducing a wide range of student financial support measures.¹⁹ These include student loans, debt forgiveness, grants, scholarships, and income tax credits. It has also influenced policies with respect to tuition and other fees. Because the gap persists, governments continue to focus their policy efforts on financial aid initiatives.

The persistence of the PSE participation gap despite these financial support policies motivated researchers to seek connections between PSE participation and non-financial factors. They included in their models variables such as parental education, secondary school performance, measures of engagement in high school, rural versus urban location, distance to a PSE institution, Aboriginal vs non-Aboriginal, immigrant or Canadian-born, and gender.

One consistent result found in this work is that the link between participation and family income falls significantly (although it does not disappear completely) when parental education is added as an explanatory variable. Other non-financial variables are significant as well, but generally less so than family income. The obvious explanation for this result is that income is correlated with many of the non-financial factors.

18 Finnie, Mueller, Sweetman and Usher (2008) as well as Berger, Motte and Parkin (2009) provide recent and comprehensive surveys of the Canadian accessibility literature.

19 This section draws on research by Lennon and Zhao (forthcoming).

For example, family income is likely to be lower if neither parent has attained a PSE credential. Thus, some portion of what appears as a connection with income is actually due to the special challenges of being the first family member to attend college or university.

The policy implications of this new research are significant. Finnie et al. (2008, p. 22) summarize the consensus as “culture dominates money,” where “culture” is shorthand for the non-financial influences that are primarily family-related. The clear lesson is that the policy focus must shift to conditions affecting students’ academic performances and decisions long before the PSE application stage.

This conclusion does not imply that financial aid policies are not essential and valuable, and we stress this—without these supports in place, family income would almost certainly appear as an even more significant determinant. To ensure future gains in PSE participation rates, we must develop policies that address these cultural factors as well.

2.2 | Accessibility in Ontario

The available research on accessibility has focused mainly on the national picture. So far, the size of the samples in these longitudinal data sets and other limitations of the data have limited detailed analysis at the provincial level. Although the picture for Ontario is unlikely to differ significantly from that of Canada as a whole, the province is sufficiently unique in its demographic make-up, its economic structure, the design of its postsecondary education system, and its policy mix that it merits a separate analysis.

2.2.1 | Family Income

The obvious first question to pose is whether the correlations between PSE participation and family income observed at the national level hold for Ontario as well.

Figure 2.1 draws on SLID data to show the number of students attending university full-time by income quartile for the period 1999–2007. Figure 2.2 shows the equivalent data for students attending college full-time. By construction, the number of students in each quartile is equal, so these are equivalent to participation rates.

Figure 2.1 shows little difference in university participation among the bottom three quartiles, and little change over time in any of the series. Participation by students in the top income quartile is higher in all years, and increased notably after 2002. According to these data, the income gap for university participation in Ontario between those in the highest income quartile and others widened between 1999 and 2007, particularly after 2002.

The picture is somewhat different for colleges. Figure 2.2 reveals little difference among income quartiles in students attending college full-time, and no apparent changes in any of the series over time. This finding is consistent with that found more generally; namely that income is less of a determinant in decisions to attend college.

Dooley, Payne, and Robb (2009), in a paper sponsored by HEQCO, explore links between family income and participation in Ontario universities over the period from 1995 to 2005. They begin their analysis by linking three data sets: i) application data from the Ontario University Application Centre (OUAC); ii) grade and school level variables for publicly funded secondary schools from Ministry of Education data; and iii) neighbourhood demographic data on socioeconomic characteristics from the 1991, 1996, 2001, and 2006 censuses.

A simple plot of the number of applications to universities over the period reveals clear differences among income quartiles. A more revealing measure is a comparison of trends in the rates of application²⁰ by income group. There is a strong rank ordering in this case. The application rate for the highest quartile in 1995 is nearly 50 per cent compared to 30 per cent for the bottom quartile, and the gap appears to have widened slightly over the ensuing decade. The application rate for the top quartile in 2005 is 55 per cent compared to just over 30 per cent for the bottom one.

Their results for the top income quartile are consistent with those portrayed in Figure 2.1. Both application and participation rates for this group increased absolutely and relatively, particularly after 2002.²¹ The findings differ with respect to the other three quartiles, however. Dooley et al. (2009) find a clear stacking of application rates by income quartile, while Figure 2.1 shows no apparent differences in participation rates. The discrepancy may be due to the different sources for the income variable—

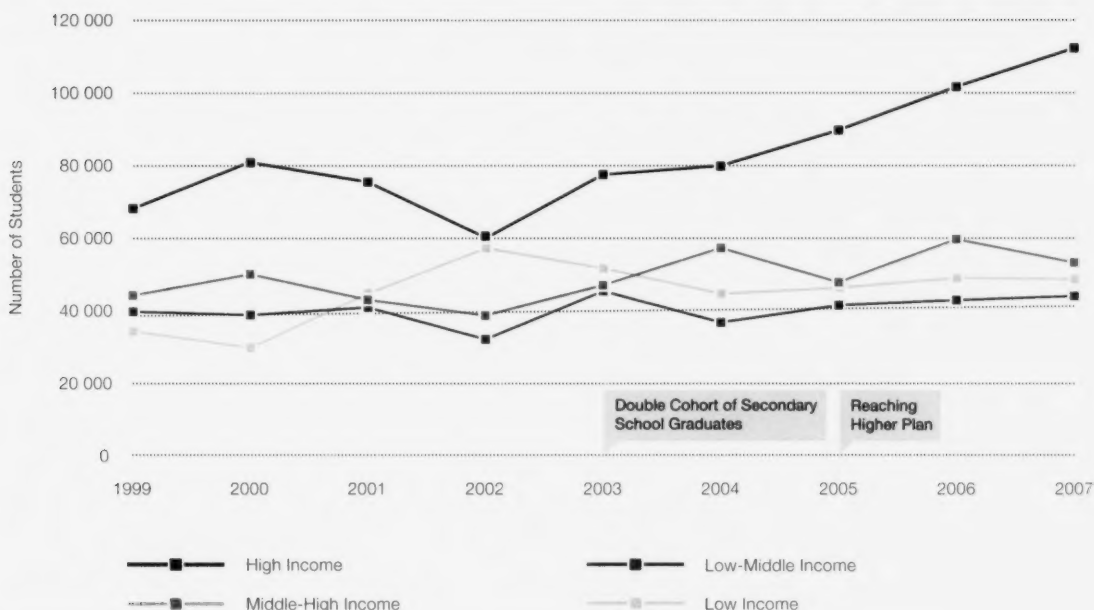
20 Equal to the number of applicants divided by the potential pool of applicants.

21 Figure 2.1 shows this trend continuing to 2007 while Dooley et al. have data only to 2005.

FIGURE 2.1

Number of Ontario Students Attending University Full-Time by Income Quartile, 1999 to 2007

Source: Special Calculation from Survey of Labour and Income Dynamics Data



census districts in one case and SLID in the other.

Dooley et al. also calculate registration rates, defined as the percentage of applicants who actually register at an Ontario university for the year in question. Interestingly, there are virtually no discernible differences among income groups in this case. The implication of this result is that the effects of family income on university participation comes at the application stage. Once the decision to apply is made, income apparently ceases to be a constraining factor. This conclusion supports the view that policy attention increasingly must turn to early intervention strategies.

The obvious second question to pose is whether, as in the national literature, these income effects become less important once other variables correlated with income are included. Dooley et al. (2009) employ multivariate statistical analysis to address this issue. Census neighbourhood characteristics are one set of variables, including above median share of population aged 15-19, above median share of families with one parent, and three categories of ethnic descent. The second set of correlates is drawn from secondary school

characteristics. These include grade 9 test scores from the Education Quality and Accountability Office (EQAO), whether the institution is a separate school, enrollment, rural location, distance to a university, and distance to a college.

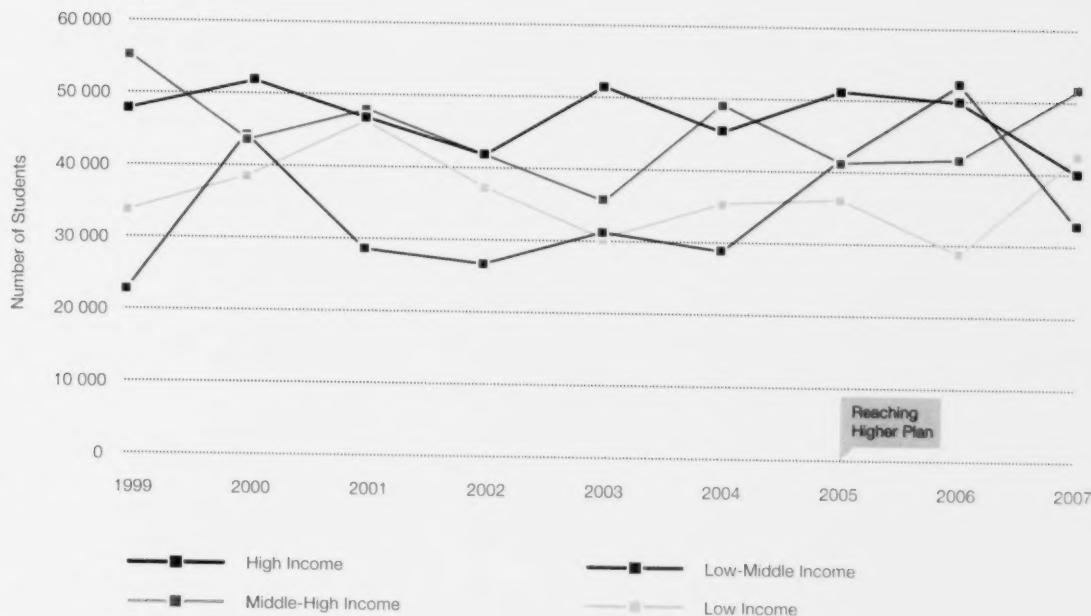
Family income remains a significant determinant of university application rates in this full model, but its effect is diminished. The gap in the application rate between the highest and lowest income quartiles without controls is 21.4 percentage points; with controls, the gap narrows to 13.6 percentage points, a result that is consistent with the national literature cited earlier.

The authors are able to use data from the Ontario Universities' Application Centre (OUAC) to see if family income affects students' choice of program from arts, sciences, commerce, engineering, and other areas. Rankings are consistent over income quartiles; the highest rates are in arts and the lowest are in engineering. The ratio of application rates from secondary schools in the highest income areas to those in the lowest income areas is around 1.6 for four of the program areas over the decade. The exception

FIGURE 2.2

Number of Ontario Students Attending College Full-Time by Income Quartile, 1999 to 2007

Source: Special Calculation from Survey of Labour and Income Dynamics Data



is commerce where the application ratio for the two quartiles is over 2.0 in 1995, rising to 2.5 in 2005. The final section of the paper investigates these program application differentials, focusing in particular on the effects of tuition fee increases and the introduction of merit scholarships.

The 2005 *Reaching Higher* budget backgrounder promoted access through student financial assistance as one of the strategic areas of focus (Government of Ontario, 2005a). The government committed to:

- improve student financial assistance for low- and middle-income students
- develop a new tuition framework
- in collaboration with the federal government and the Canada Millennium Scholarship Foundation develop low-income tuition grants for first-year dependent students
- develop a grant for second-year dependent students
- expand eligibility for student loans and increase weekly loan amounts
- reduce parental contribution expectations,

expand interest relief, and recognize computer costs in needs-assessment

- match funds raised by institutions to establish endowments for student financial assistance and develop Ontario Trust for Student Support
- work with the federal government to broaden and expand student assistance

It is difficult to determine yet if any of these specific policies have had a direct impact on increasing access for low-income students. The two issues that complicate assessment of the initiatives are data limitations and an insufficient amount of time to allow the impact to be seen. HEQCO will report on this topic further in a future research note.

2.2.2 | First Generation Status

We know from the national research on accessibility that parental education is a significant determinant of PSE participation. When included in regression models, the influence of family income drops significantly, as noted above. The implication is that much of what was originally interpreted as a financial barrier is actually a cultural one. First generation status is also correlated

with other determinants of participation and persistence such as Aboriginal identity and rural location.

Data problems are particularly severe in this case. The census does not ask about first generation status, so we have no information on parental educational attainment. Nor are there official tallies of the number of first generation students enrolled in Ontario's colleges, universities and apprenticeship programs. Estimates exist, and are reported by institutions in annual MYAAs, but they employ different definitions and survey instruments.

The first issue to resolve is how to define a first generation student.²² The most restrictive case is where neither of the student's parents has any PSE experience. A less restrictive definition would include at least one parent who attended a postsecondary program but did not complete a credential. It also matters how the question is phrased. For instance, most surveys provide a list of possible educational options, including "the highest level of education completed," "some or completed college or cégep," "attended university without earning a degree" or "completed a bachelor's" among the options. Many surveys ask the question twice, once for mother and once for father. However, some surveys simply ask the level of education of "parents." Some surveys only ask for completed degrees and diplomas, while others offer the option of answering "some incomplete postsecondary."

Academica Group has been conducting surveys of college and university applicants for several years, focusing on demographics, influences on decision-making, and finances. HEQCO commissioned Academica to profile first generation students, drawing on the University Applicant Survey (UAS), the College Applicant Survey (CAS), and the University and College Applicant Study (UCAS) data from 2005 to 2009 (data prepared by Academica for HEQCO, October 2009). Data were provided for applicants whose parents "did not attend" as well as "did not complete" in order to alleviate concerns with the validity of the questions. The sampling found very little difference in responses between the two groups.

Demographics from the study show that first generation applicants for both university and colleges are most commonly females, and are likely to be slightly older

than other students. They are more likely to be rural and commuting to a postsecondary institution. Academically, first generation university applicants are more likely to report grades lower than 75 per cent, and less likely to report grades over 90 per cent, although there is no difference in college applicants. First-generation students are less likely to be direct-entry—particularly if they are applying to university.

First generation students were the focus of some policy initiatives by the Ministry. In 2007-08, eight colleges and universities received three-year funding and in 2008-09 and 2009-10 an additional 35 institutions received funding to deliver projects under the Access to Opportunity—First Generation Initiative. Projects included outreach and pre-admission transition initiatives for first generation students not enrolled in PSE and support and retention services for those enrolled. In 2009-10, a project evaluation was conducted for colleges and universities that had received funding between 2005-06 and 2007-08 (18 institutions fell into this category). This evaluation concluded that a clear definition was needed to successfully track program success.²³

2.2.3 | Aboriginals

Our second annual review (pp. 38-39) touched briefly on PSE attainment for Ontario Aboriginals. Here we draw on more disaggregated census data to provide a slightly fuller picture.

Figure 2.3 shows the highest educational attainment for Aboriginals relative to non-Aboriginals for the Ontario population aged 20-64 in 2006. A value of 1.0 on the vertical scale indicates equal attainment rates. The first point to note is that the major difference in educational attainment comes at the secondary school level. Aboriginals are more than twice as likely as other students to drop out of high school. This is a clear case where policy initiatives aimed at increasing PSE attainment must focus on identifying and implementing appropriate early intervention strategies.

The second point to note is that university attainment is the mirror image of the high school situation. Aboriginal attainment rates lag those for the non-Aboriginal population by substantial margins. The gap is smallest for university certificates and diplomas below the bachelor's level, and greatest for credentials in the

22 The term itself is a common source of confusion as it is often assumed to refer to students whose parents were born outside Canada.

23 Details are from communication with MTCU.

cluster of health-medicine programs.²⁴

The third observation from Figure 2.3 is that Aboriginal attainment rates compare favourably to those for the non-Aboriginal population for trades, apprenticeships, and college programs. Aboriginal attainment rates are over 1.5 times greater for trades, and equal for apprenticeships. They are above 1.0 for the two shorter college programs. The only exception is longer college programs (2 years plus). The contrast with university attainment is notable, and definitely worth further investigation.

Figure 2.4 compares educational attainment for Aboriginals in Ontario aged 20-64 relative to their counterparts in the rest of Canada.²⁵ High school graduation rates are higher in Ontario, and attainment rates for trades and apprenticeships are substantially higher. Attainment rates in Ontario are relatively lower for short college programs (3 months to 1 year) but significantly greater for the longer programs. University attainment rates for baccalaureate degrees are about equal to those in the rest of Canada, but those for more advanced programs are all above 1.0.

One avenue of particular interest with respect to Aboriginal educational attainment is that of gender. Figure 2.5 shows female to male attainment for Aboriginals and for non-Aboriginals in Ontario aged 20-64 for various educational categories. There is a clear gender factor for both populations,²⁶ but it is particularly striking for Aboriginals with respect to longer college programs, certificate and baccalaureate programs, and earned doctorates. It would be interesting to explore these gender differences in order to better understand Aboriginal PSE participation more generally.

Data problems arise when turning to expected future PSE attainment. Simply put, we do not know how many Aboriginal students aged 18-24 (or any other age cohort for that matter) are enrolled in Ontario's colleges, universities, and apprenticeship programs. Estimates exist, but they are based on different definitions and survey methodologies. Without this information, it is impossible to calculate meaningful participation and graduation rates.

Any attempt to provide reliable estimates faces two significant challenges. The first is to provide a consistent

definition of Aboriginal status. Two examples indicate the importance of this issue. The 2008 Academica survey had a two-part question for college students. Part 1 asked if the respondent was an Aboriginal person (with a general definition provided). If the answer was yes, part 2 asked for the group to which the applicant belonged: Métis, Inuit, Non-status, and Status (with an option not to answer). In responding, 316 out of 9,118 students, or 3.5 per cent, answered in the positive. In 2009, the question asked for the respondent's racial or cultural group. Aboriginal was one option, along with Black/African Canadian, Chinese, Caucasian/White, and so on. Only 136 out of 8,324 students, or 1.6 per cent, responded positively in this case—less than half of the figure the previous year.

The census provides another example. It asks respondents about Aboriginal ancestry and Aboriginal identity. In 2006, 4.2 per cent of Ontario respondents indicated they have Aboriginal ancestry, while only 2.5 per cent chose to declare Aboriginal identity.

The second challenge is that any survey must rely on self-identification. It is frequently alleged that individuals are reluctant to declare that they belong to an under-represented group. HEQCO is supporting research into how to design survey questions for Aboriginals. The crux of this issue is how best to approach Aboriginal students to encourage their identification as such, through collection methods that ensure the most accurate data. The study by the Canadian Council on Learning will be published early in 2010 and features a literature review and the results of a survey of key officials in Ontario's PSE communities.

2.2.4 | Persons with Disabilities

Our second annual review (HEQCO, 2009) provided background information on the highest educational attainment of the population with disabilities, drawn from the Participation and Activity Limitation Survey (PALS) in 2001. It showed that more than one-third of this group has no certificate, diploma, or degree, nearly triple the figure for the province as a whole. The proportion of those with a high school certificate or equivalent is only slightly lower than the provincial average. Persons with disabilities are more likely to possess a trade or apprenticeship credential than the population as a whole (12% compared to 8.8%), although rates of college attainment are somewhat lower (17.5% compared to

24 The cluster includes medicine, dentistry, veterinary medicine, and optometry.

25 The census category "Aboriginal" covers very diverse populations, and this diversity must be taken into account when making comparisons among provinces.

26 This pattern is discussed in more detail below.

FIGURE 2.3

Ratios of Highest Educational Attainment for Population Aged 20-64, Aboriginals to Non-Aboriginals, Ontario, 2006

Source: Statistics Canada 2006 Census

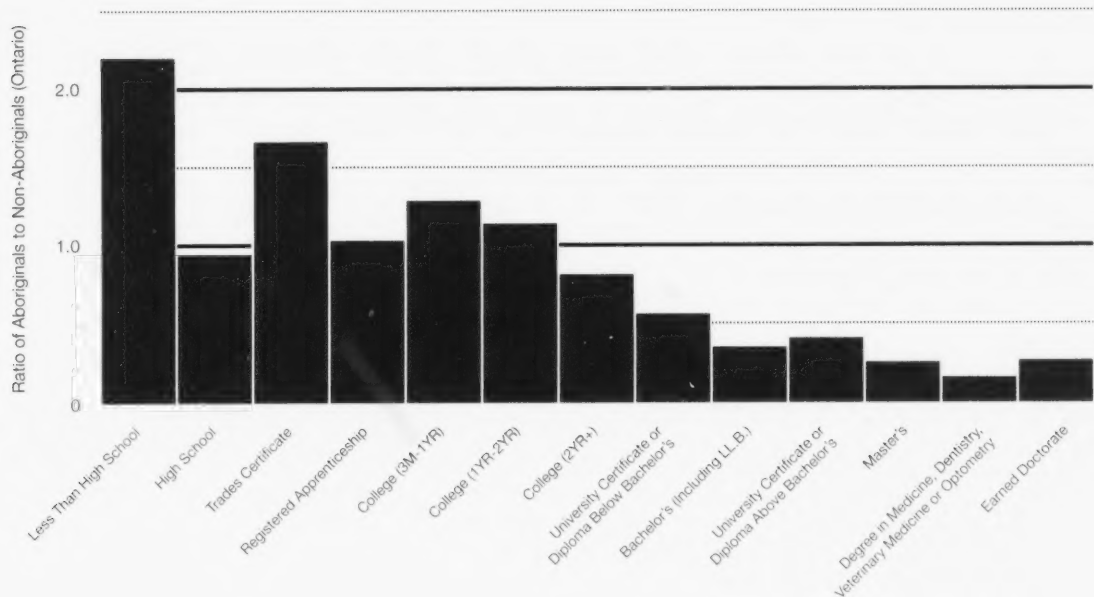


FIGURE 2.4

Aboriginals vs. Non-Aboriginals Ratios of Highest Educational Attainment for Population Aged 20-64, Ontario Relative to the Rest of Canada, 2006

Source: Statistics Canada 2006 Census

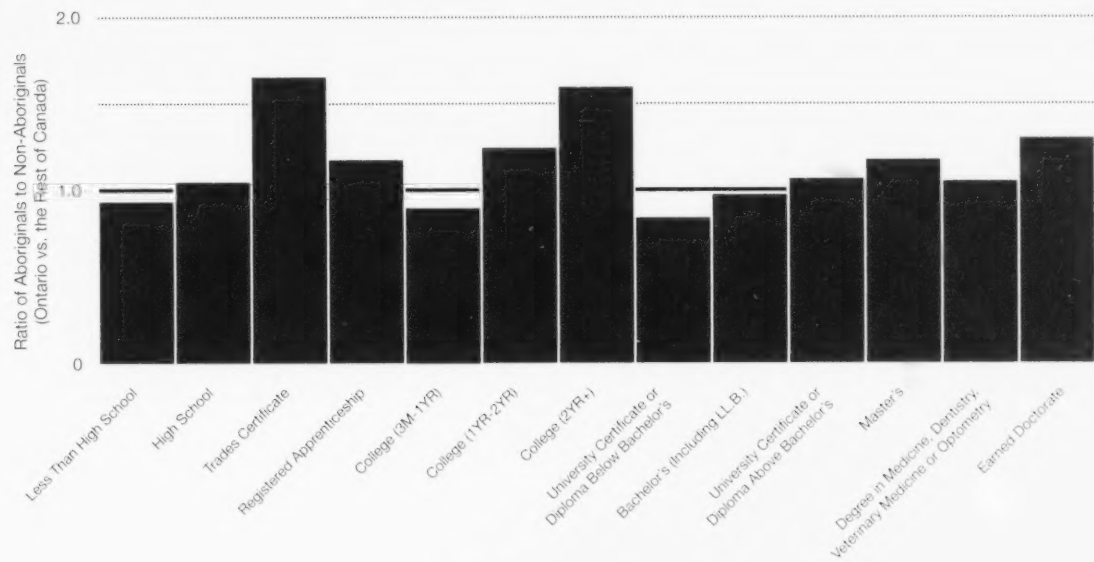
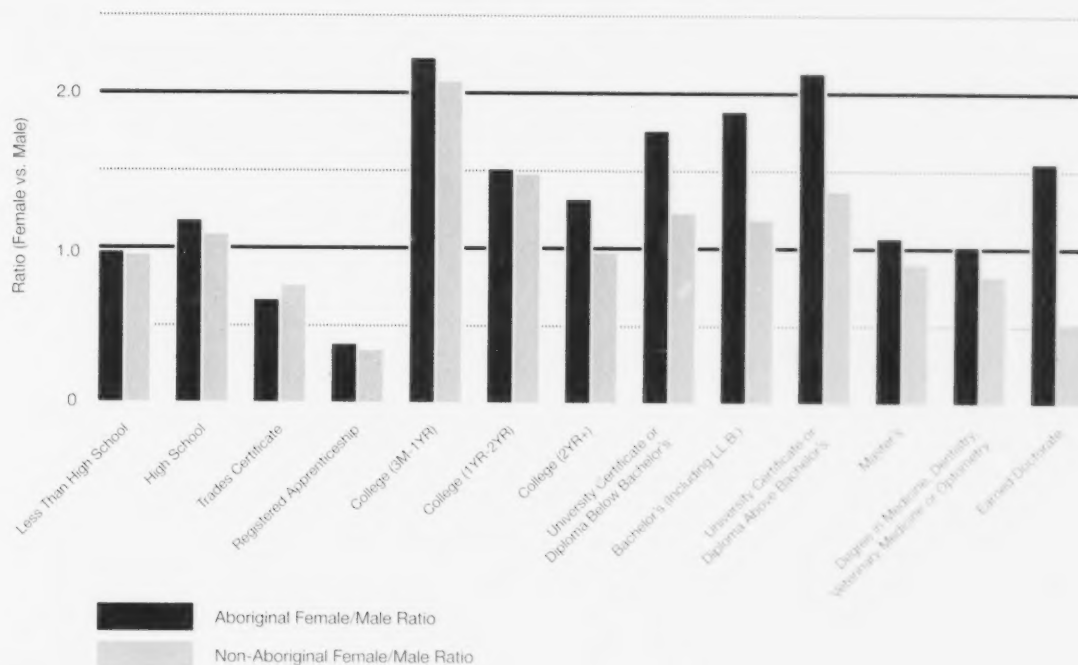


FIGURE 2.5

Ratios of Relative Educational Attainment for the Population Aged 20-64, Female Relative to Male, Aboriginals and Non-Aboriginals, Ontario, 2006

Source: Statistics Canada 2006 Census



22%). The real discrepancy is in university attainment, which sits at about 40 per cent of the provincial average.

The 2006 PALS survey is complete, but the educational attainment data had not been released at the time of writing (December, 2009) so statistical updates cannot be provided in this report. One point is certain, however: the number of students with disabilities participating in Ontario's PSE system will increase significantly in future. This is as it should be. The challenge will be to facilitate the trend.

HEQCO is supporting a number of research projects on this topic. The work acknowledges from the outset that this under-represented group is very diverse, and that lessons learned in one case do not necessarily apply to others. Understanding the challenges and coming up with policy solutions must necessarily proceed on a case-by-case basis.

A HEQCO-supported paper by Susan Alcorn MacKay (forthcoming) provides an excellent example of the challenges facing the PSE sector with respect to one type of disability. The project had two goals: i) to identify the number of students with Autism Spectrum Disorder (ASD) who will be graduating with an Ontario Secondary School Diploma and entering postsecondary studies in 2009, 2010, and 2011; and ii) to perform a gap analysis of the services being provided in secondary schools compared with those currently provided in the postsecondary education system.

Based on reports from 72 of the province's 93 school boards and school board authorities in Ontario, Alcorn Mackay estimates that there are at least 5,800 students currently in the secondary system identified with ASD. About 1,400 of these students will be graduating with a secondary school diploma, and over 1,100 of those students will be seeking to enter college or university between 2009 and 2011. She further suggests this is a

Chapter 2

Accessibility

Accessibility is an explicit theme in *Reaching Higher*, and it continues to be a priority for the Ontario government. There is an obvious equity rationale for making accessibility a priority. Postsecondary education is a key to economic success and to a high quality of life, so it is only proper to wish this opportunity for all Ontarians. But there is an efficiency rationale underlying the objective as well. The province will be able to meet its future human capital targets only by fully engaging all demographic and socioeconomic groups in PSE.

Reaching Higher identified specific groups for particular attention—low-income families, Aboriginals, francophones, new Canadians, persons with disabilities, and first generation students (p. 11). Research on accessibility frequently adds gender and visible minority status to this list. They are not officially designated groups in Ontario, but many of the same issues are present.

How is Ontario doing in meeting its accessibility objectives?

conservative estimate.

The Alcorn MacKay paper identifies possible gaps in service in PSE institutions that could be problematic for students with ASD. These include a requirement for staff specifically trained in ASD, a dedicated 'safe' space for these students, and academic studies supported by staff trained as ASD coaches. These services are not currently available in most of Ontario's colleges and universities. Secondary school specialists reported that the students with ASD who intended to go on to postsecondary (after graduation with an OSSD and other prerequisites) were indeed capable of meeting the academic requirements but required extensive social and academic supports.

Alcorn MacKay summarizes the recommendations from disability service providers. There is a need for institutions to consider a focus on professional development activities for staff in the area of autism spectrum disorder, especially front-end staff providing direct service, security staff, faculty and staff with the responsibility for emergency preparedness. If there is a concentration of students with ASD in an institution, consideration should be given to additional staff in the Disability Service area with the responsibility for developing and implementing services and supports for students with ASD, including transition activities and a dedicated space as a safe de-stressor for persons with ASD. In many cases the availability of such a space avoided other more socially unacceptable and even potentially critical incidents.

2.2.5 | Immigrants

The focus on new Canadians in *Reaching Higher* was clearly appropriate. Ontario has been the top choice among immigrants as their province of settlement. According to the 2006 Census, foreign-born individuals constitute 28.3 per cent of the province's population, the highest proportion of all provinces. In 2008, Statistics Canada projected that 54 per cent of the immigrants who have arrived in Canada since 2000 and who will arrive up to 2026 have settled or will settle in Ontario (ElDakiky and Shields, 2009).

Our second annual review devoted considerable attention to the educational attainment of immigrants. It reported that 21 per cent of Ontarians with PSE credentials in 2006 obtained those credentials outside Canada. This figure is only slightly lower than that for British Columbia, and there is a significant gap between

these two provinces and the rest of Canada. Immigrants are significantly more likely than non-immigrants to have university degrees, while the reverse is true for college and apprenticeship credentials.

In future work, we will draw on disaggregated data from the 2006 Census to provide a fuller picture of the educational attainment and labour market experiences of immigrants. We will look at variations in PSE attainment among the main immigrant groups, at gender differences, and at differences in labour market outcomes depending on where PSE credentials have been earned and the time since immigration. Our study will also link to the issues related to recognizing credentials earned outside Canada.

HEQCO is also supporting a project on the educational and other experiences of the children of immigrants. The researchers will address the following questions: i) What are the ethnic differences in economic participation including educational attainment, occupational status, and earnings among the children of immigrants? ii) To what extent do parental human capital, social and ethnic capital account for these ethnic differences? iii) How does Ontario compare with other provinces in the attainment of postsecondary education credentials by the children of immigrants?

2.2.6 | Gender²⁷

Reaching Higher did not include gender in its accessibility discussion, but gender has emerged as a topic of considerable interest recently. Interestingly, in light of gender equity debates in recent decades, the attention today has turned to what is happening to boys.

Historically, females were under-represented in PSE. As recently as 1971, 63 per cent of undergraduate students enrolled in Ontario universities were male. Since then, PSE participation rates have increased for both genders, but particularly for women. Parity in university enrolment was achieved in the mid-1980s; by 2006, 58 per cent of undergraduates were female, where it has remained. Enrolment at the master's level reached gender parity in 1999-2000, whereas males continue to outnumber females at the doctoral level, although even this gap is narrowing.

In the college sector, overall enrolment stood at 53 per cent female and 47 per cent male in 2008-09, proportions that have remained relatively stable for the past decade. Apprenticeship continues to be an

27 This section draws on Kerr (2010).

avenue to postsecondary education and training in which females are under-represented, comprising approximately 19 per cent of registrations in 2007.

An examination of the attainment of university degrees by field of study indicates that females currently predominate in more than half the disciplines, even in the traditionally male-dominated fields of agriculture and natural resources, the sciences, and business. However, disaggregating these fields of study reveals that some traditional gender patterns persist:

- within the sciences, most of the increase in female participation is in the life sciences, not in physics and chemistry in which males continue to predominate;
- the number of females enrolled specifically in engineering has been dropping for the last decade while the number of males has increased (MTCU enrolment data).

A concern of many researchers and stakeholders in postsecondary education is that examining data at a broad level does not tell the whole story. In the United States, national studies disaggregating enrolment data by gender, race, and socioeconomic status exhibit varying gender patterns for different groups. In Canada, the gender gap in university attainment has been shown to vary by race and ethnicity, as measured both by visible minority status and, as noted earlier, by Aboriginal status. The concern is that there are specific groups of males and females who are at risk who may not be receiving the attention they need.

Recent research projects in postsecondary education have attempted to identify and address gender differences by developing a better understanding of the determinants of participation and performance for males and females. Studies show that trends attributed to gender arise well before they enter programs at the postsecondary level. Males are generally less ready to begin school, and throughout both elementary and secondary school they tend to have lower overall school grades. Males do not perform as well on standardized tests in reading, are more likely to repeat a grade, have lower non-cognitive skills, are less engaged in learning, are more likely to drop out, and ultimately take longer to graduate. Females are more likely to hold positive aspirations for university than males, and more females enrol in university-preparation courses offered in secondary school. These are characteristics and behaviours which have been found to exert an influence on students' decision making, access to and persistence in PSE.

In the application process, females appear more likely than males to apply directly from secondary school for admission to university and college, while males are more motivated by employment and give greater consideration to pathways other than postsecondary education.

Gender differences are also apparent within the PSE experience itself. Females are more likely than males to persist in their studies, even in apprenticeships where they are under-represented. Persistence in and completion of postsecondary programs are related to students' pre-entry characteristics as well as to their application of strong learning strategies during their first year of PSE: leavers already struggle with poor academic performance and study behaviour during their first year.

Has the increase in female attainment of PSE credentials improved their experiences in the labour market? It is well understood that higher education can provide a gateway to higher earnings. In terms of the economic outcomes of higher education, although some improvements have been made, the gains made by females in educational attainment have not translated into full equality in occupational choices and earnings. The differences between men's and women's earnings have narrowed since the 1970s, but they continue to favour males, although factors in addition to education play a role here. Females also continue to be under-represented in certain high-paying occupations and many traditional patterns in choice of occupation persist. Despite lagging behind academically, therefore, it appears that males are still not at a disadvantage within the labour market.

This is not to imply that the lower PSE participation level of males relative to females is not an issue of concern. The implication for PSE institutions may be in the direction of increased collaboration and consultation with the secondary education sector in an effort to address the determinants of students' decisions on whether or not to participate in PSE. A further research direction for Ontario might be to further disaggregate the gender data by such characteristics as socioeconomic status, ethnicity, and geography to provide more nuanced results in order to identify which males and which females may be at risk of not pursuing postsecondary education.

2.3 | Observations and HEQCO Research Underway

The conclusion to this chapter can be stated succinctly

as follows: we know that PSE attainment in Ontario varies significantly among population groups, but we do not know what progress is being made to overcome these gaps. Evidence that gaps exist comes from 2006 Census data on PSE attainment. Not all under-represented groups are captured in these data, however, and PSE attainment is, in any case, a backward-looking indicator.

To be able to gauge progress on closing these gaps, we need to know the participation rates and graduation rates for these under-represented groups. We cannot calculate these rates, however, as we do not know how many students from under-represented groups are registered in colleges, universities and apprenticeship programs in any given year. Estimates exist, and are reported in MYAAs and other documents, but they are not assembled in a consistent fashion.

An essential first step in furthering our understanding of accessibility in Ontario PSE, therefore, is to obtain more reliable data. We have approached this requirement in three ways:

1. Mining National Data Sources

The first approach is to mine national data sets for province-level information. To date, most work with key data sources (such as Statistics Canada's *National Graduates Survey* and YITS) have been conducted at the national level. As the largest province, Ontario will obviously have a significant effect on the national numbers. But, Ontario's population, economy, and PSE system are sufficiently unique to warrant looking for province-specific patterns, sample sizes permitting.

We noted in Chapter 1 the three projects underway using the *National Graduates Survey* data to look at the alignment between postsecondary education and labour market needs. A second project in this vein will undertake an extended analysis of access to and persistence through PSE for Ontario using the YITS. This project has three sub-projects:

- The first sub-project will replicate for Ontario PSE-choice models already estimated at the Canada-wide level. This task will involve examining an expanded set of correlates of attendance at college or university, including the indicators of membership in under-represented groups.
- The second sub-project will delve more deeply into the structure of access for under-represented groups. This investigation will include gender comparisons, immigrants, those from first generation PSE families, possibly

those from low-income families, and possibly rural versus urban students.

- The third sub-project will focus on persistence through graduation for Ontario, including an emphasis on the same identified groups.

2. Linking Provincial Education Data Sets

The second approach involves linking provincial education data sets. There are rich data sets in Ontario covering many aspects of the education to labour market process. Examples include data held by the university and college application centres (OUAC and OCAS), the Ontario Students' Assistance Program (OSAP), school boards, and public universities and colleges. This information is collected by independent bodies for their own purposes, with (understandably) little attention to how they might link with other information.

Nevertheless, researchers who have obtained access to various key data sets have, by successfully linking them, gained considerable insight into Ontario's PSE system. We noted above how Dooley et al. (2009) used linked data sets to examine the effects of family income on PSE application, registration and program choice decisions. King et al. (2009), in a study commissioned by Colleges Ontario, is another example of what can be learned from linked data sets.

HEQCO is supporting two further data-linking projects. One involves a consortium of six GTA colleges interested in understanding more fully the factors behind student attrition; this project is discussed more fully in chapter 3. The second is an extension of the pilot project by Dooley et al. (2009). The objectives are to expand the number of linked data sets and to use the resulting information to investigate further determinants of access, persistence, student success, and institution and program choice. Importantly, they will continue with their focus on the effects of various initiatives such as tuition fee deregulation and changes in student financial aid policies.

3. Made-in-Ontario Longitudinal Survey

The third approach to filling data gaps is to design and implement a made-in-Ontario survey that would track a sample of Ontario students from grade 9 through postsecondary education or the labour market, depending on their choices.

HEQCO is working with the Social Program Evaluation Group at Queen's University to explore the feasibility of introducing such a survey. The first step in this project is to consult with sector stakeholders. The second step is to develop a sample design for a survey tool,

drawing on the lessons learned from consultations with stakeholders about best-practices in survey techniques and processes for survey implementation. Plans for the draft survey include a one-time parental survey in grade 9 to gather information about parental income, occupation, and education, as well as parental attitudes and expectations for their children's postsecondary education, their knowledge of current student financial assistance offered and of the costs of education, and their savings plan for their children's education.

Finally, the project will advise on the potential to link to administrative data sets including: school board data, data associated with the OEN, EQAO or PISA data, college and university applicant centre data, OSAP data and postsecondary institutional data.

A Final Word on the Ontario Education Number

In our second annual review (2009, p. 99), we argued that "The task of developing an appropriate data set would be greatly assisted by the widespread dissemination of the Ontario Education Number (OEN)." We acknowledge the practical issues involved in making this happen, but we remain convinced that widespread implementation and dissemination of the OEN is essential to understanding, and resolving, many of the challenges facing Ontario postsecondary education.

system as having two basic features. The first is effective teaching and learning, which we interpret as programs that achieve clearly-defined learning outcomes. In keeping with the discussion in Chapter 1, these learning outcomes would include appropriate mixes of generic and specific knowledge and skills. The second basic feature is that the great majority of students will graduate, and will do so in a reasonable period of time.

These features accord closely with the description recently offered by Jamie Merisotis, the president of the Lumina Foundation for Education in the United States (14 October 2009): “Lumina defines high-quality credentials as degrees and certificates that have well-defined learning outcomes which provide clear pathways to further education and employment.” Higher education’s true purpose, he argues, is “equipping students for success in life.” Quality must be a measure of “what students actually *learn* and are able to *do* with the knowledge and skills they gain” (*emphasis in the original*).

There is no readily-available measure of educational quality that fits this definition, hence, there are no obvious targets or benchmarks. The greatest challenge lies in gauging learning outcomes, but the caution extends to evaluating graduation rates and times to completion. There are, however, some promising options that, if interpreted properly, can provide useful insights into educational quality in Ontario. We review these in what follows.

HEQCO’s mandate extends to working with colleges and universities to identify and disseminate promising practices to enhance teaching and learning quality, so we conclude this chapter with an overview of the work underway.

3.1 | Learning Outcomes

Having clearly defined learning outcomes in place is a necessary condition for a quality educational experience.

This is certainly the case in Ontario’s postsecondary education system. The Ontario Qualifications Framework (OQF)²⁸ sets out expected learning outcomes for all postsecondary programs, whether leading to a certificate, a diploma, or a degree under the auspices of the Government of Ontario. The OQF contains two sections:

- “Qualification Descriptions” provides basic descriptive material such as typical program length, the usual admissions requirements for each credential, ranging from certificates to earned doctorates.
- “Qualification Standards” describes each credential in terms of expected learning outcomes, using categories in common use internationally—depth and breadth of knowledge, conceptual and methodological awareness, communication skills, application of knowledge, professional capacity/autonomy, and awareness of limits of knowledge.

Institutions are expected to incorporate these expected learning outcomes into their course and program designs.

The challenge is to determine if these outcomes are in fact being realized. There are two approaches to addressing this challenge: quality assurance and quantitative indicators. We look at each of these in what follows.

3.2 | Quality Assurance

The first approach is that of quality assurance. The basic premise of quality assurance is that good processes produce good outcomes. Accepting this premise, the question then is: does Ontario have good quality assurance processes?

3.2.1 | Ontario’s Quality Assurance Processes

Ontario has a full suite of quality assurance processes in place. These were outlined in detail in the *Second Annual Review and Research Plan* (HEQCO, 2009), so the following paragraphs are merely a brief summary and update.

There are two quality assurance processes in place for Ontario’s colleges. At the program level, responsibility lies with the Credentials Validation Service (CVS), which uses an assessment process whereby colleges submit program proposals to CVS staff who evaluate the submission against a Ministry framework document. At the institution level, responsibility for quality assurance

28 Available at <http://www.edu.gov.on.ca/eng/general/postsec/oqf.html>.

rests with the Program Quality Assurance Process Audit (PQAPA), which follows an audit process whereby each institution's program quality assurance processes are audited on a cyclical basis by an external panel. The panel reports to the PQAPA management board, which prepares a final report.

College applications to offer degree programs are evaluated by the Postsecondary Education Quality Assessment Board (PEQAB). Using an assessment approach, PEQAB strikes an expert panel to review the quality of the program against Board standards, then sends its recommendation to the Minister for a final decision.

Two quality assurance processes are in place for Ontario universities—one for undergraduate programs and another for graduate programs. This situation, however, is likely to change shortly. Currently undergraduate programs are the responsibility of the Undergraduate Program Review Audit Committee (UPRAC) under the direction of academic vice-presidents. As the name implies, UPRAC uses an audit process. Each institution's programs are audited on a cyclical basis by an external review team. They send the final reports to the vice-presidents' group, which has responsibility for follow up actions, as appropriate.

Quality assurance for graduate programs is conducted by the Ontario Council on Graduate Studies (OCGS). OCGS uses an assessment process. Existing programs are reviewed on a seven-year cycle and must be approved for continuation; when new programs are proposed, they must be assessed and approved before the institution can offer them.

The Council of Ontario Universities (COU) initiated an extensive review of the province's quality assurance process. The main motivation was a concern that the OCGS process, while very thorough and effective, was becoming increasingly cumbersome and expensive. No details about the revised quality assurance processes are available at the time of writing (December, 2009).

Two other postsecondary education providers in Ontario warrant brief mention. Evaluation of program proposals by out-of province-providers is the responsibility of PEQAB and follows much the same process as for college degree programs. The Ministry holds direct responsibility for overseeing the private career colleges.

3.2.2 | Observations

There is no single best approach to quality assurance, so there is no obvious standard against which to judge

Ontario's system. There is ample reason, however, to believe that the province has processes in place, or soon to be in place, that are appropriate for its unique mix of public universities and colleges and out-of-province providers. Thus, if one accepts the premise that good practices produce good outcomes, observers can be quite confident about the quality of postsecondary education in Ontario.

One advantage of the quality assurance approach is that it can be applied both at the institution level and at the system level. An institution is judged to meet expectations if it meets the scrutiny of audit or review panels and their governing agencies. By extension, the system as a whole is judged to meet quality expectations if all institutions are in compliance.

This feature suggests the possibility of incorporating the results of the quality assurance processes into the Multi-Year Accountability Agreements (MYAAs) at the system level. In this way, postsecondary institutions would report the results of any interventions in each reporting year, and would update their reports from earlier years. These reports could be collated to prepare a narrative summary for the sector as a whole, paying particular attention to common elements in the reviews. We return to this suggestion in chapter 4.

3.3 | Quantitative Indicators

Another approach to evaluating learning quality is to use quantitative indicators. In our *Second Annual Review and Research Plan* (2009), we argued that "value-added" was the gold standard measure of educational quality; that is, the knowledge and skill sets that students have acquired by graduation compared to those at the time of admission. Ways and means of measuring the value-added are complex and expensive to produce, but we note with encouragement the commitment by the Lumina Foundation for Education to advance such measures.

In the meantime, we are left with surrogate indicators of the quality of learning. As outlined in the following paragraphs, some approaches, with appropriate interpretation, appear to offer useful insights into the quality of Ontario PSE.

3.3.1 | Colleges

Three surveys are conducted annually in Ontario's college sector as part of the KPI requirement. Colleges use the KPI data for internal program review, as a measure of intervention success, and for student recruitment. The

Ministry also ties a small amount of funding to the results. We believe that these surveys, with results properly interpreted, are useful indicators of the overall quality of education offered in Ontario's colleges.

The *Student Satisfaction Survey* is administered to all enrolled students beyond their first semester. A summary question (#47) asks students to "Rate the importance of, and your satisfaction with, your overall college experience." In the *Graduate Satisfaction Survey*, the summary question (#34) asks "How would you rate your satisfaction with the usefulness of your college education in achieving your goals after graduation?" In the *Employer Satisfaction Survey*, the summary question is "In general, how would you rate your satisfaction with this employee's overall college preparation for the type of work he/she was doing?"

Figure 3.1 shows provincial average results for the three summary questions for the period 2000-01 to 2008-09. The results are remarkably consistent among the surveys and over time. Interestingly, employer ratings are always highest, with over 90 per cent consistently reporting that they were "satisfied" or "very satisfied" with their employees' preparation.²⁹ Graduates reported somewhat lower satisfaction rates, although these scores still range between 80 per cent and 85 per cent. Satisfaction rates on the student survey are the lowest of the three groups, although, even here, scores range between 75 per cent and 80 per cent, with a slight upward trend.

It is useful to look in greater detail at the *Student Satisfaction Survey*, which reports the results for four capstone questions. The first (#14) asks students to reflect on how well the programs they chose are providing the knowledge and skills they believe will be useful in their future careers. The second capstone question (#26) enquires into the students' perceptions of the overall quality of their learning experiences in their programs. The third question (#44) asks about the overall quality of the facilities/resources of their institution, and the fourth (#45) asks about the overall quality of the services provided at their institution.

Figures 3.2 to 3.5 show the average scores and the confidence intervals for the responses to these four questions for the period 2002 to 2008. Over 87 per cent of respondents in 2008, up slightly from earlier years, indicated that they were "satisfied" or "very satisfied" that the knowledge and skills they were developing through the courses in their programs would be useful

in their future careers, up slightly from earlier years. This estimation from the survey is quite close to the true population value, as indicated by the narrow confidence intervals. The confidence intervals narrow slightly over the period.

Satisfaction with the quality of the learning experience (Figure 3.3) is also high, with over 82 per cent in 2008 responding that they are "satisfied" or "very satisfied." The evaluations of facilities/resources and services (Figures 3.4 and 3.5) are somewhat lower, although over 70 per cent of respondents indicated they were "satisfied" or "very satisfied" in 2008, up from two-thirds in 2000-01. Again the sample estimation closely represents the true population value, and the confidence intervals narrow very slightly over time.

One could be more confident that these survey results are meaningful indicators of educational quality if it could be shown that they help explain real outcomes such as graduation rates. Internal HEQCO research (McCloy and Zhao, 2009) groups the survey data from the student level into the data from the institution/program level and then matches these clustered survey results to institutional/program-level graduation rates. Data are available for the period 2002-03 to 2008-09.

Program graduation rates vary significantly by demographic group, subject area, credential type and so forth, so the authors use a regression analysis to test for the significance of the separate influences. The dependent variable is the program graduation rate. There are three sets of independent variables: student characteristics, college and program characteristics, and student satisfaction levels. The latter set includes responses to specific questions clustered into four categories—program design, instructor, learning experience, and services/facilities.

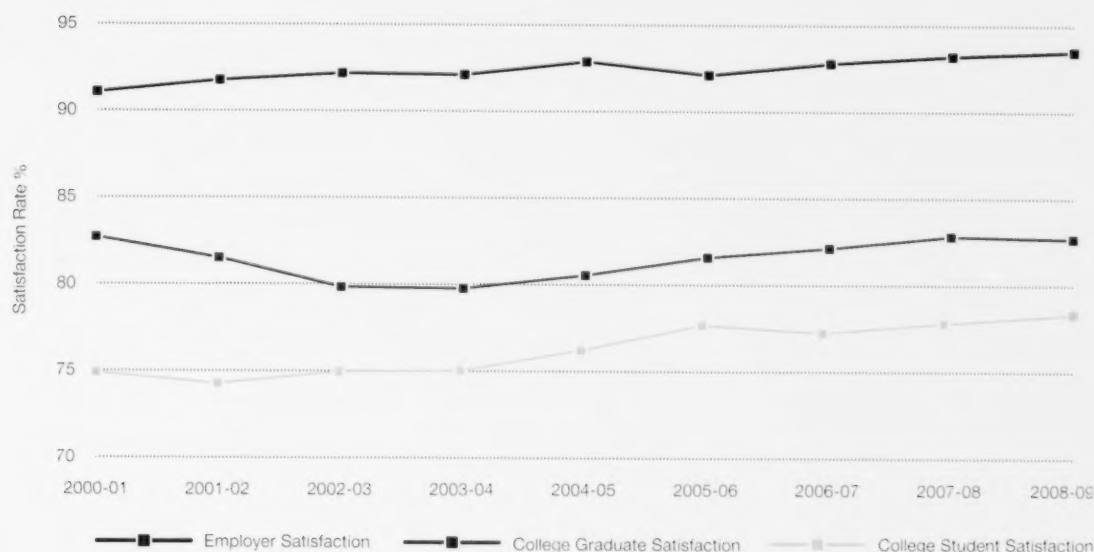
Standardizing for student and college, and program characteristics, the authors find that graduation rates are positively and significantly related to students' reported satisfaction with the general skills they are receiving in their programs and with the skills they are receiving specific to their chosen careers. Interestingly, graduation rates are negatively and significantly correlated with the satisfaction rating for a cluster of special academic services such as peer tutoring and counselling, perhaps indicating that these are used mainly by at-risk students. The correlation with the rating for a cluster of non-academic services such as recreation and

29. We noted earlier that employee permission is required for employers to be contacted, so there may be an upward bias in these responses.

FIGURE 3.1

Employer, College Graduate and College Student Satisfaction Rates, 2000-01 to 2008-09 (Percentage "Satisfied" or "Very Satisfied")

Source: MTCU "College Student Satisfaction Surveys"



safety/security is positive, as expected.

Unfortunately, no similar survey results exist for colleges in other provinces or countries, so it is not possible to do cross-comparisons. Ontario colleges are sufficiently unique with respect to their mandate and their relationship to universities that such comparisons would not be very meaningful in any case.

3.3.2 | Universities

Ontario universities have two main surveys that, interpreted properly, provide useful information on teaching and learning quality.

National Survey of Student Engagement (NSSE)

Engagement measures are a promising avenue for measuring quality. There is a large literature associating student engagement with learning outcomes,³⁰ and considerable effort has been put into developing survey instruments to measure engagement.

NSSE is the leading tool for measuring student engagement in universities. In 2004, 11 Canadian universities participated, seven of them in Ontario. In 2006, 31 participated, including all 19 in Ontario. In 2008, 38 Canadian institutions participated, again including 19 universities and one affiliate in Ontario. Participation in NSSE is now to the point where it is possible to compare results among provinces and to look at changes over time for individual universities.

The NSSE results³¹ for first-year and fourth-year students for 2006 were discussed extensively in the *Second Annual Review and Research Plan* (2009). The first comparison was an average of all Ontario universities relative to averages for select other Canadian universities and for Carnegie peers. These results showed that Ontario's scores for all five benchmarks were very slightly higher than those for other Canadian universities, but except in a few instances lagged behind those for Carnegie peers. When comparisons were restricted

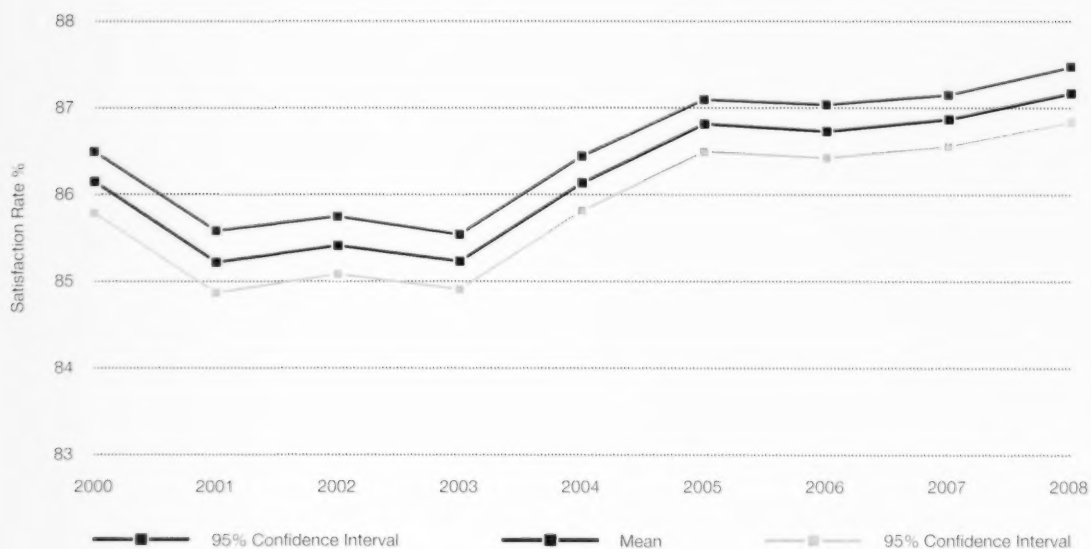
30 See CCI Research Inc. (2009), the references therein and the accompanying annotated bibliography.

31 NSSE data are publicly available only by institution; unlike the college surveys where individual student responses (stripped of all personal identifiers) for each question are available.

FIGURE 3.2

Percentage of Ontario College Students "Satisfied" or "Very Satisfied" That Their Program is Providing Knowledge and Skills That Are Useful in a Future Career, 2000 to 2008

Source: MTCU "College Student Satisfaction Surveys"

**FIGURE 3.3**

Percentage of Ontario College Students "Satisfied" or "Very Satisfied" with the Quality of the Learning Experiences in Their Program, 2000 to 2008

Source: MTCU "College Student Satisfaction Surveys"

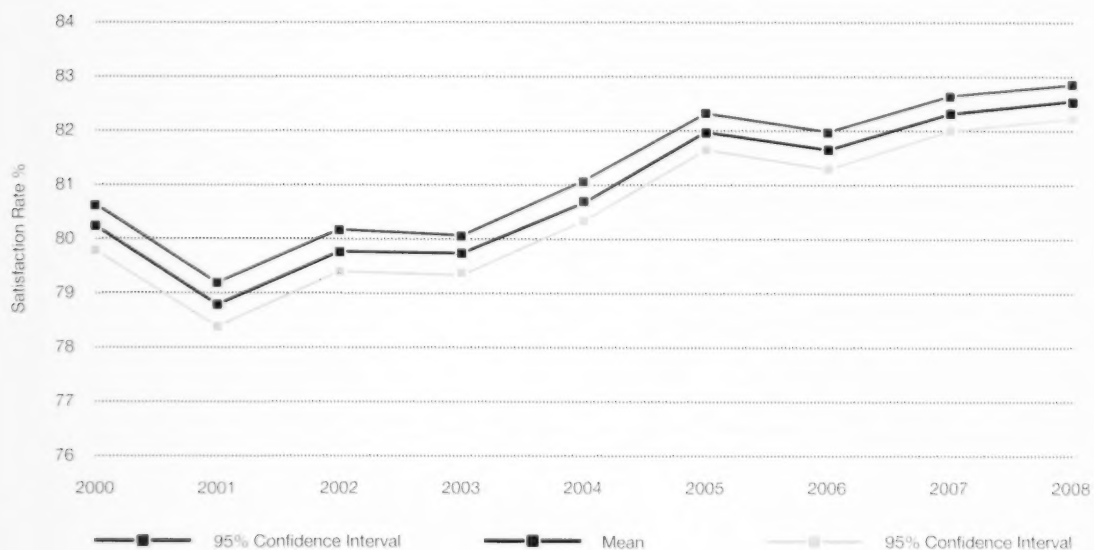


FIGURE 3.4

Percentage of Ontario College Students "Satisfied" or "Very Satisfied" with the Overall Quality of the Facilities and Resources in Their College, 2000 to 2008

Source: MTCU "College Student Satisfaction Surveys"

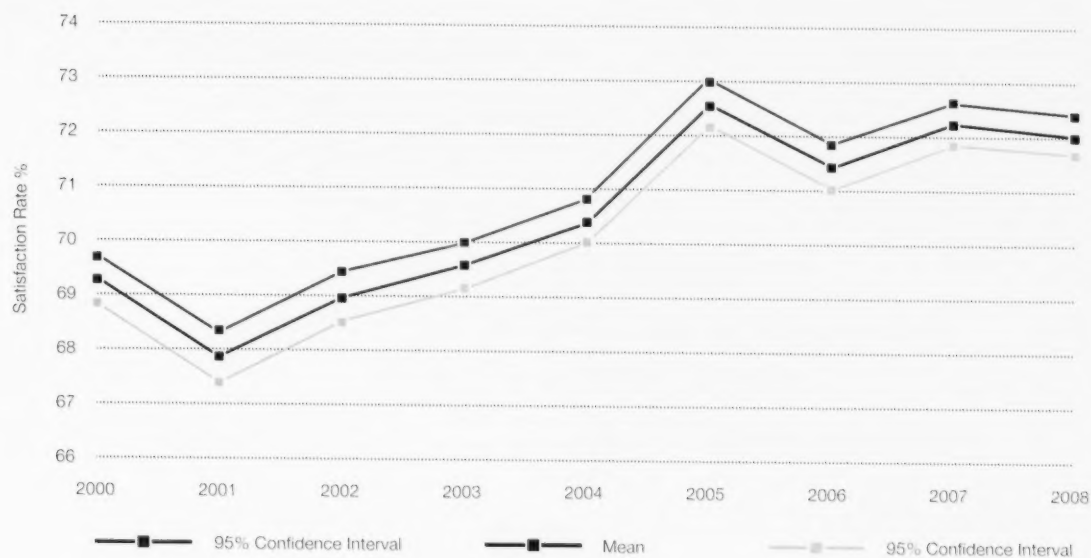


FIGURE 3.5

Percentage of Ontario College Students "Satisfied" or "Very Satisfied" with the Overall Quality of Services in Their College, 2000 to 2008

Source: MTCU "College Student Satisfaction Surveys"

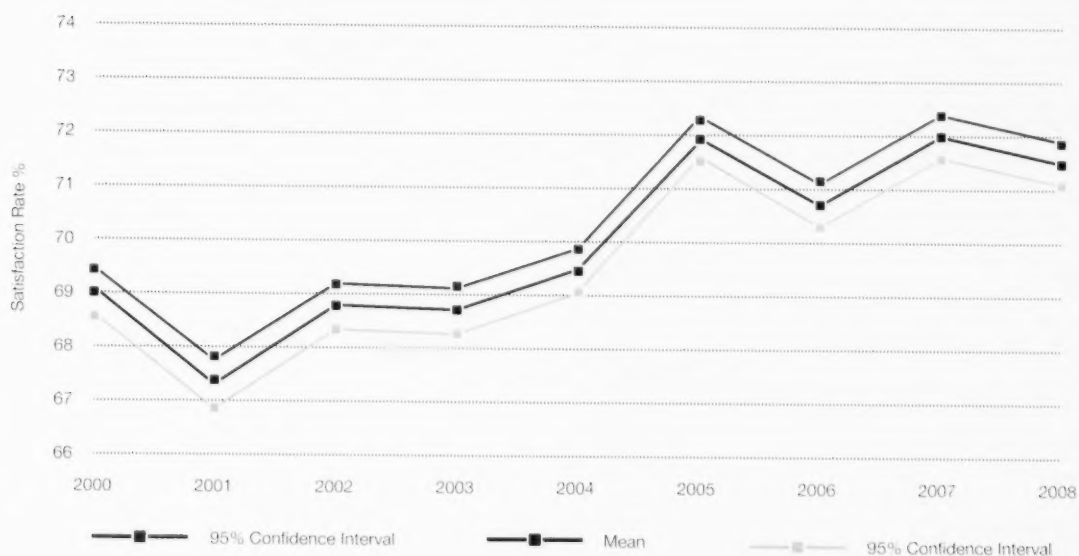
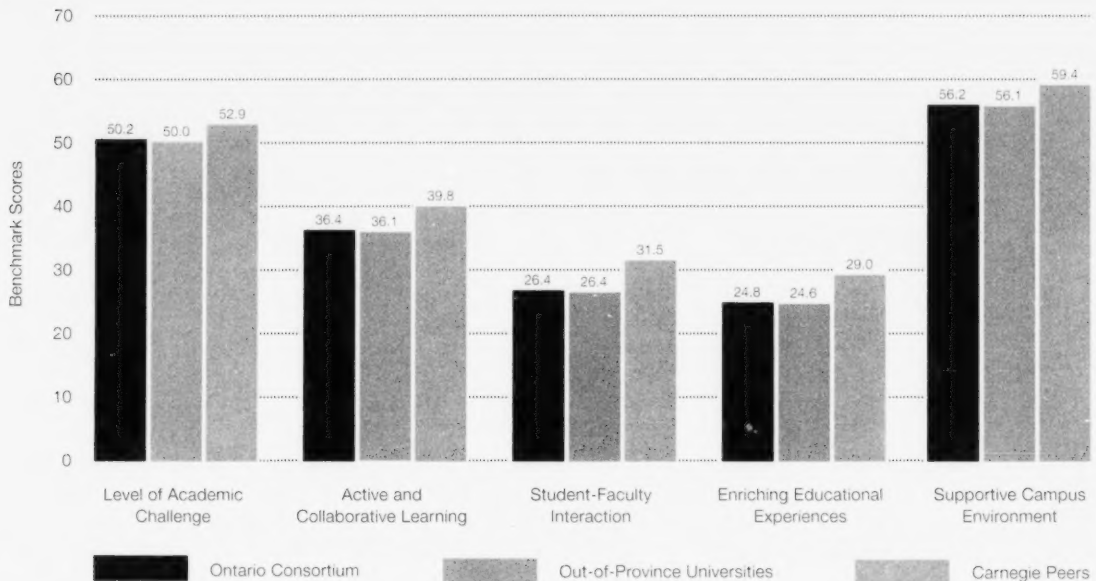


FIGURE 3.6

Comparison of Average Benchmark Scores of Ontario Universities with Out-of-Province Universities and Carnegie Peers, 2008 NSSE for First-Year Students

Source: CUDO, NSSE 2008 Institutional Benchmark Report



to research-intensive universities, the comparison to Canadian peers was more mixed and the lag behind Carnegie peers more pronounced.

The results for the 2008 NSSE survey are now available. Figures 3.6 and 3.7 show the average scores for the five benchmarks for Ontario, for other provinces and for Carnegie peers for first-year and fourth-year students respectively. The 2008 results are similar to those for previous years. There are no significant differences between the Ontario average and that for out-of-province universities for any of the five benchmarks for first-year students. Note that Canadian institutions lag their Carnegie peers in all cases.

The results for fourth-year students again are broadly similar. Ontario and Canadian universities match their Carnegie peers in three categories, but lag behind them notably in two others—student-faculty interaction, and enriching educational experiences.

Figure 3.8 shows the spread of results among Ontario universities for each of the five benchmarks for first-year and fourth-year students. Institutions are not identified in

the graph to reinforce the point that NSSE scores should not be used for ranking purposes. In four cases, the vector of results for fourth-year students lies above that for first-year students. The exception is the responses to the question about supportive campus environment. These patterns are not unexpected. The experience for many students is large lecture classes in first year followed by smaller and more interactive sessions in upper years. The results for the questions about a supportive campus environment probably reflect the fact that many campus support services are directed at entering students.

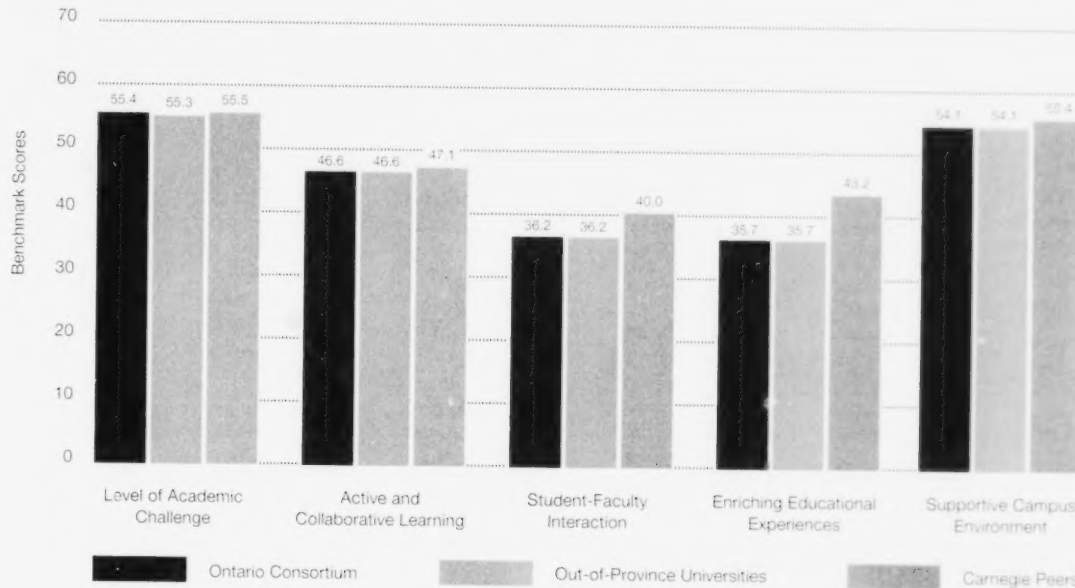
The largest spreads—for supportive campus environment, active and collaborative learning, and student faculty interaction—are more tightly bunched for level of academic challenge and enriching educational experience. There is no obvious explanation for these differences.

Figure 3.9 shows the spread of results for the summary question asking students to rate their entire educational experience. The first vector is for first-year students while the other is for those in fourth year. The spreads are quite similar. The overall satisfaction rating among

FIGURE 3.7

Comparison of Average Benchmark Scores of Ontario Universities with of Out-of-Province Universities and Carnegie Peers, 2008 NSSE For Fourth-Year Students

Source: CUO: NSSE 2008 Institutional Benchmark Report



first-year students ranges from 70 per cent "satisfied" or "very satisfied" to over 90 per cent. The range for fourth-year students is from 65 per cent to 90 per cent. The Spearman rank correlation coefficient for the two sets of rankings is 0.89, and that for Kendall's tau-b is 0.73 (after correcting for ties). Both reject the hypothesis that the rankings are independent.

NSSE results are available for 17 Ontario universities for 2006 and 2008, so it is possible to look at changes over time in measures of student engagement. Figure 3.10 shows the results for active and collaborative learning for first-year students and Figure 3.11 does the same for fourth-year students. Figures 3.12 and 3.13 provide the same information for student-faculty interaction. Results for the other three benchmarks are not shown.

In the case of active and collaborative learning (ACL), the results for first-year students increased between 2006 and 2008 in nine cases, declined in three, and remained essentially unchanged in five instances. Results for fourth-year students were more stable, increasing in six cases, declining in two, and remaining essentially unchanged in nine.

Figure 3.12 shows considerable movement. Results for first-year students for student-faculty interaction increased in 14 cases, declined in two, and remained essentially unchanged in one instance. This result carries over to upper-year students. Scores increased between 2006 and 2008 in 13 cases, declined in two, and remained essentially unchanged in two others. It is not yet clear what is behind these changes.

Canadian Graduate and Professional Student Survey (CGPSS)

The *Canadian Graduate and Professional Student Survey (CGPSS)* was designed to gain insights into the experiences of graduate and professional students, as its name suggests. Twenty-eight Canadian universities participated during the winter session of 2007, including 16 Ontario institutions.

The survey collected a large amount of information. Demographic data included gender, age, family profile, member of a visible minority, Aboriginal status, and type of housing. Students were asked about sources of financial aid and about the amount of educational debt they were carrying. They were asked to rate a list of

Chapter 3

Educational Quality

Educational quality was a key focus of the Rae Review and figured prominently in *Reaching Higher*. The document did not articulate what was meant by quality education, however, and relied instead on identifying inputs and processes that, presumably, would produce a more positive outcome—increase the number of faculty, provide capital support for planned expansions of medical schools and graduate studies, improve the pathways for students, and improve the collaboration between colleges and universities.

How is Ontario doing in meeting its educational quality objectives?

To answer this question we need both a way to measure educational quality and targets or benchmarks against which to compare actual performance. Unfortunately, these requirements are not easily met.

The *Second Annual Review and Research Plan* (HEQCO, 2009) identifies a quality education

FIGURE 3.8

2008 NSSE Results for Ontario Universities on Five Benchmarks, First- and Fourth-Year Students

Source: NSSE 2008

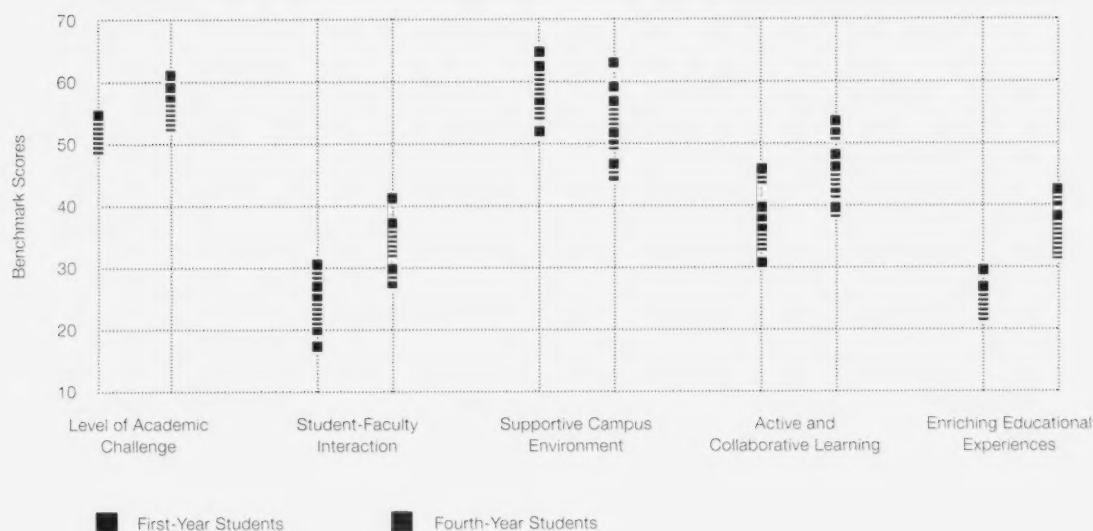


FIGURE 3.9

Percentages of Students in Ontario Universities Rating Their Entire Educational Experiences as "Good" or "Excellent"

Source: NSSE 2008

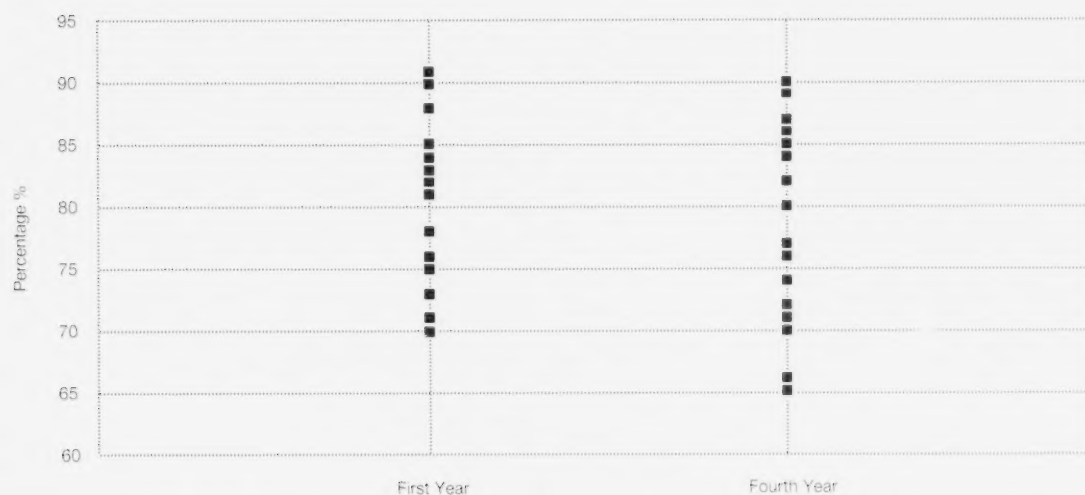


FIGURE 3.10

Active and Collaborative Learning, First-Year Results, NSSE 2006 and 2008, Ontario Universities

Source: NSSE 2006, 2008

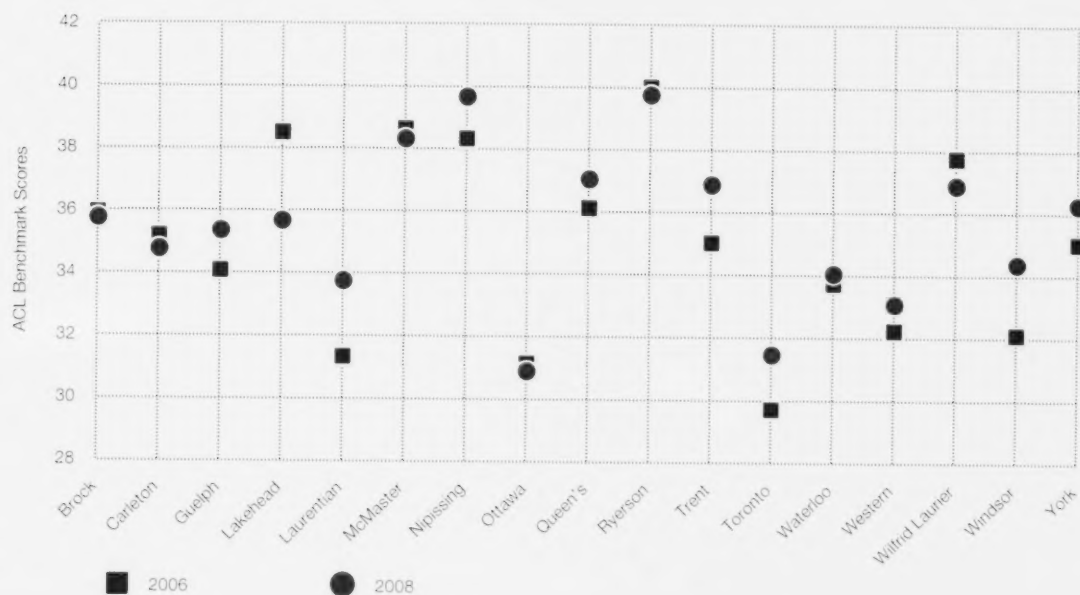


FIGURE 3.11

Active and Collaborative Learning, Fourth-Year Results, NSSE 2006 and 2008, Ontario Universities

Source: NSSE 2006, 2008

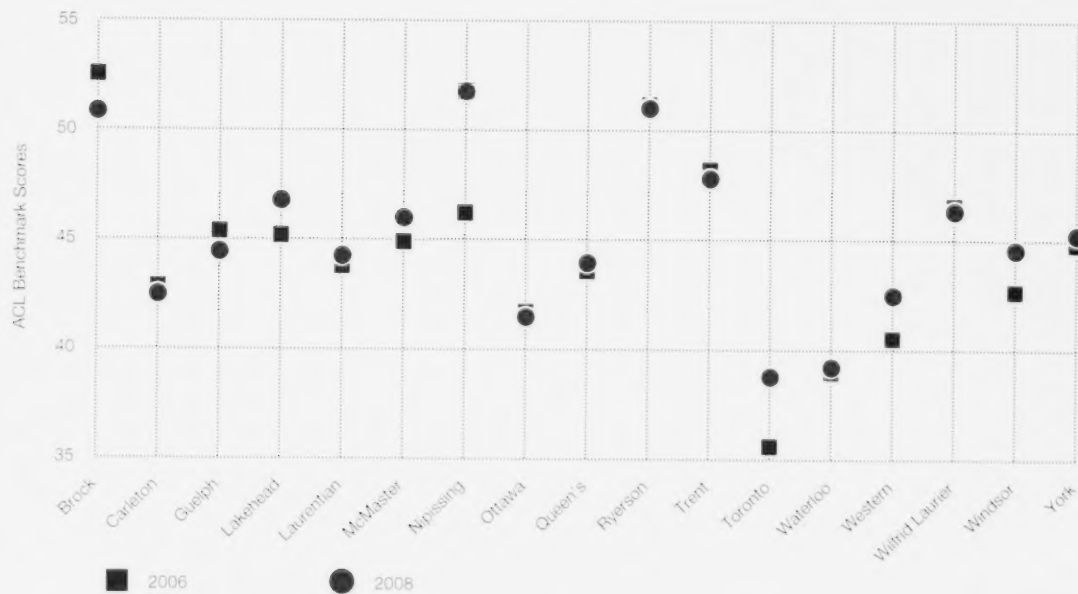
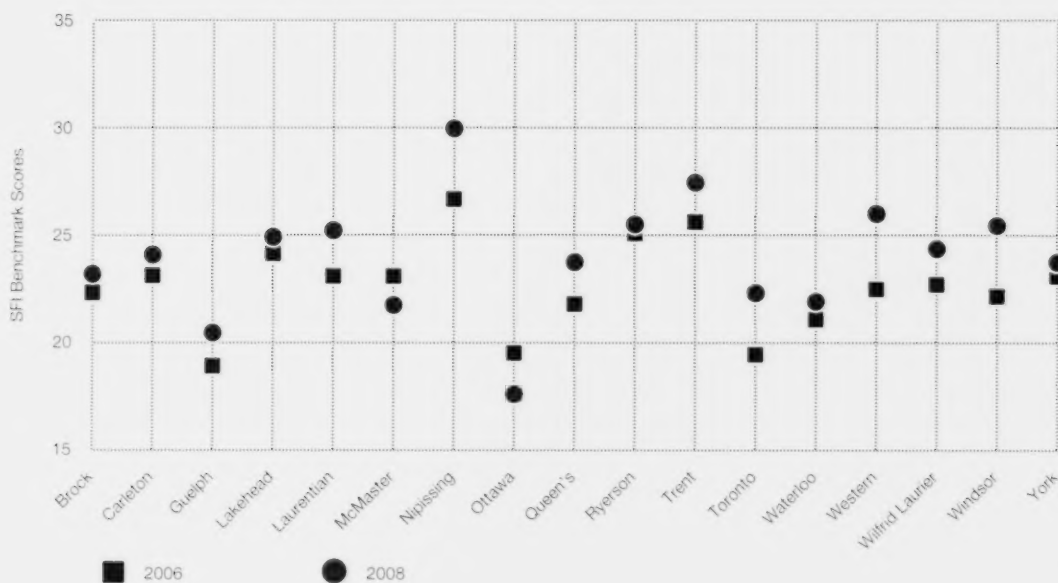


FIGURE 3.12

Student-Faculty Interaction, First-Year Results, NSSE 2006 and 2008, Ontario Universities

Source: NSSE 2006, 2008

**FIGURE 3.13**

Student-Faculty Interaction, Fourth-Year Results, NSSE 2006 and 2008, Ontario Universities

Source: NSSE 2006, 2008

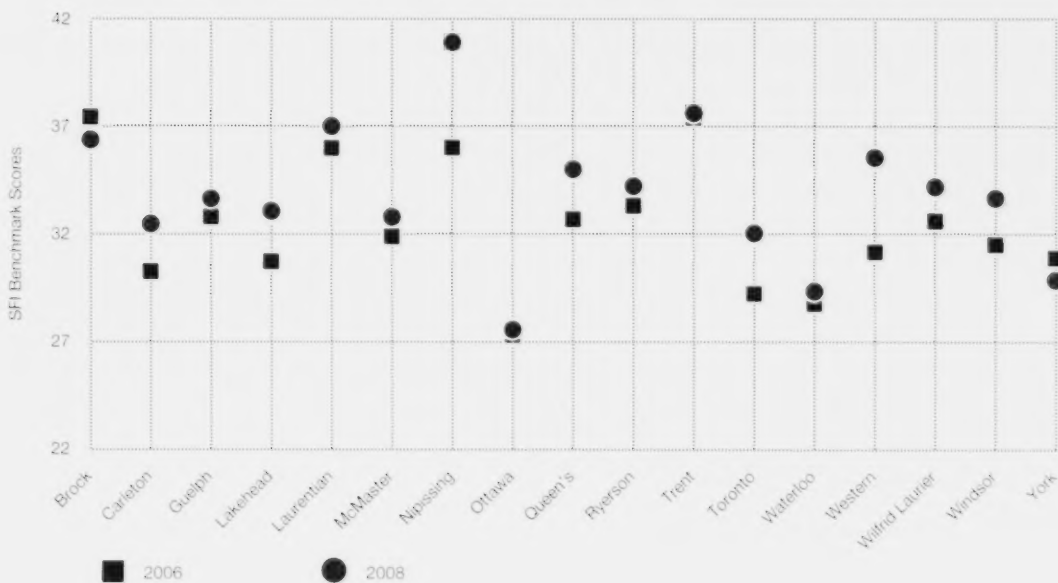
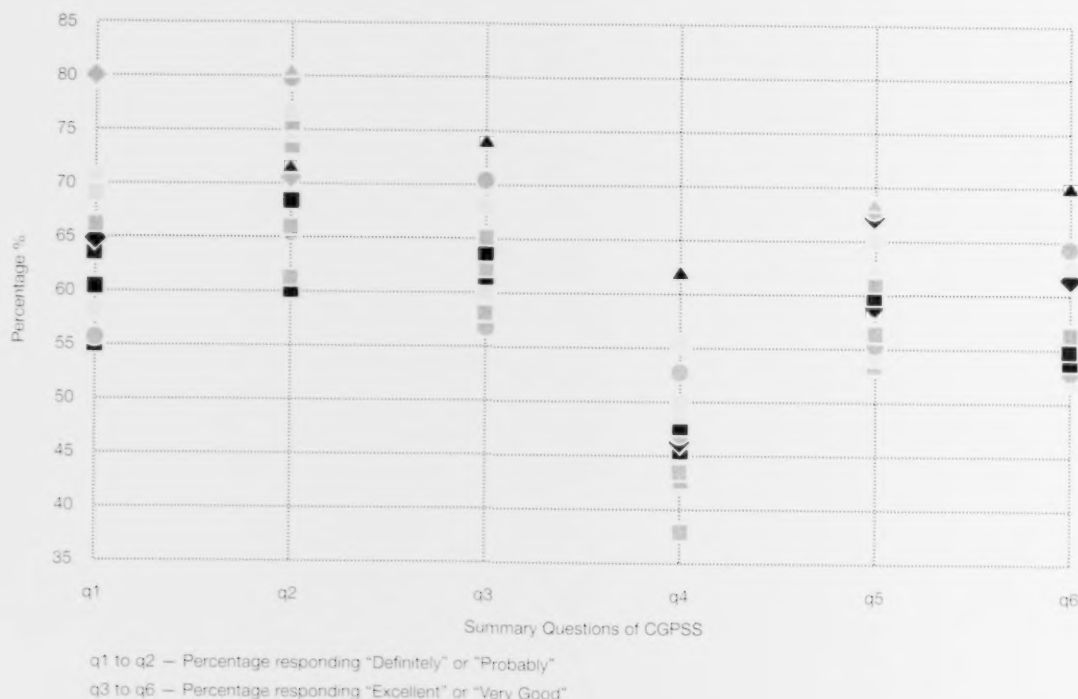


FIGURE 3.14

Distribution of Results on the Six Summary Questions by University from the *Canadian Graduate and Professional Student Survey, 2008*

Source: Compiled from CU/SG, 2008



university resources such as library facilities, research laboratories, athletic facilities, and the registration process.

Respondents indicated their degree level, discipline, year of study, and current status in the program. They were asked to rate a number of dimensions of their programs —intellectual quality of faculty, quality of graduate-level teaching, opportunities for collaboration and teamwork, and views on thesis supervision.

In the six summary questions, students were asked whether they would select the same program if they were starting over (q1), and whether they would recommend the university to someone considering the program (q2). They were also asked to rate the quality of their

academic experience (q3), of their student life experience (q4), and of the graduate/professional program at their university (q5). The final question asked them to rate their overall experience (q6).

Ontario universities report the results for the summary questions in the database, Common University Data Ontario (CUDO). Figure 3.14 shows the scatter of results.³² The percentage of respondents saying they would "definitely" or "probably" select the same university if they were to start their program over ranges from 55 per cent to 80 per cent, very similar to the variation in those who would recommend the university to someone considering their program. The range for the percentage of respondents rating their overall academic experience as either "excellent" or "very good" is from

32 Institutions are not identified in the graph to reinforce the point that simple rankings are inappropriate.

55 per cent to 75 per cent. Responses for the quality of life experience are significantly lower, ranging from under 40 per cent to 60 per cent. The ranges for the final two questions (quality of graduate/professional program and overall experience) are similar—from just over 50 per cent to 70 per cent.

In an effort to explore the properties of this data set more fully, HEQCO supported a project exploiting record-level data for the University of Western Ontario (Spence, 2009). The paper first summarizes the results for the university in a series of descriptive statistics. The final section reports the results of a logistic regression on the question, "Overall, how would you rate the quality of your academic experience at this university?" The dependent variable is the odds that the respondent would rate the quality as high.

Significant explanatory variables include the availability of courses, the opportunities to take coursework outside one's own department, the overall quality of teaching at the graduate level, the performance of one's advisor, and the availability of advice on career options within academia. The variables that turned out not to be significant include age, gender, degree type, year of study, total debt load, work and financial commitments, amount of course work, availability of department funding to attend conferences, and advice on career options outside academia.

The CGPSS clearly provides much useful information on the quality of graduate students' experiences at Ontario universities. The summary questions, properly interpreted, provide potential indicators for inclusion in Multi-Year Accountability Agreements (MYAAs).

3.3.3 | Observations and HEQCO Research Underway

In sum, there are a number of promising quantitative indicators of educational quality. None measures educational quality directly, so it is not yet possible to draw firm inferences from them about teaching and learning quality in Ontario's college and university programs, either over time or on a comparative basis. But preliminary analysis of the properties of the measures, such as linking satisfaction and engagement scores to final outcomes such as graduation rates is encouraging.

HEQCO has a number of projects underway aimed at understanding the properties of these indicators more fully. The research is directly relevant to constructing new MYAAs, and will be of considerable interest to colleges and universities as they strive to improve educational quality.

College Student Engagement Measures

We noted in the *Second Annual Review and Research Plan* (p. 70) that the *Community College Survey of Student Engagement* (CCSSE) was developed to meet the need for a student engagement survey for community and technical colleges. The survey has had almost no take-up in Canada to date. HEQCO is supporting a pilot project with Humber College to administer CCSSE and to analyze the results. The initial report will be an account of the commitment required to administer CCSSE, while the final report will delve into what CCSSE reveals about teaching and learning quality at Humber.

The Ministry is testing a made-in-Ontario engagement survey. Twenty-four additional questions have been added to the *Student Satisfaction Survey* for 2009-10, with 22 of 24 colleges choosing to participate in the pilot. The first set of questions, informed and guided by the engagement literature, is designed to measure the degree to which students report they are engaged in their educational activities. Thus, they are asked about how often they participated in class discussions, asked questions in class, discussed course performance with a teacher, and so forth. The second set of questions asks about the institution's support for academic and social opportunities, while a third set looks at how students allocate time over a typical week.

The National NSSE Project

We clearly need to know more about NSSE if it is to be used as an accountability measure or as a metric for evaluating teaching and learning quality. We know that engagement scores vary consistently with student characteristics, program characteristics, and institutional characteristics. Yet the only NSSE data publicly available are institutional averages for the five benchmark indicators. Thus, we can observe variations in NSSE scores among institutions, but we do not know how to explain them. Do they reflect differences in enrolled students, differences in program mix, differences in institutional features such as the availability of residence spaces, or genuine differences in learning quality?

Institutions have record-level NSSE data, and consistently report that they have learned much from drilling down into the data to examine variations among faculties, departments, and programs. But sample sizes in any individual institution are small, so these exercises are limited in scope.

Recognizing the promise of NSSE but also these limitations, HEQCO is supporting the *National NSSE Project*, led by Chris Conway of Queen's University.

Forty-four Canadian universities provided record-level NSSE data along with several sets of administrative data (stripped of all personal identifiers), which will be merged and analyzed in support of three projects.

Project #1 will feature program-level reporting and student subgroup-level reporting of institution-by-institution NSSE results. Pooling the data for the 44 institutions overcomes the sample size problems that confront individual institutions. Project #2 is a multi-institution analysis and reporting for small programs and small student subgroups. Project #3 aims to identify and report on determinants of variations in engagement scores. Engagement is hypothesized to depend on three types of variables: student predisposition, institutional character, and exogenous factors. The other objective of this project is to examine engagement as a predictor of retention from year 1 to year 2. The expectation is that the two are positively linked after standardizing for student predisposition, institutional character, and exogenous factors.

3.4 | Retention and Graduation Rates

We noted in the *Second Annual Review and Research Plan* (2009, pp. 78-84) that students fail to complete PSE programs for many reasons, only some of which relate to the support and services they receive during their studies. Nevertheless, what marks the quality of an education system are the policies and processes in place that are aimed at increasing the opportunities for at-risk students to succeed.

3.4.1 | The Literature in Brief³³

The persistence literature addresses three themes—How severe is the drop-out problem? What causes students to drop out? What policies can improve the situation?

Recent work with YITS data at the national level has altered our understanding of the severity of the drop-out problem. Finnie and Qiu (2009, pp. 180-181) report that the average five-year graduation rate for college students is 56.5 per cent and for university students is 52.1 per cent when the cohorts are defined as those completing their first program of registration. But these figures omit students who switch programs and those who leave and subsequently return to school. When these groups are included, the average graduation rates are 73.1 per

cent for college students and 69.4 per cent for university students. Adding in the students who are still enrolled boosts the average rates to 82 per cent and 89.8 per cent respectively.

Research on why students drop out is less advanced. There is some overlap with factors that explain participation, but also some significant differences. Financial factors rarely figure into decisions not to continue. Family background does not appear to matter much either, unlike its strong influence on decisions to attend in the first place. Lack of interest in PSE and poor program fit are more frequent responses to surveys.

Conrad (forthcoming) argues in an HEQCO-supported project that the focus must shift from retention rates to retention risk. He objects to using raw retention rates on the grounds that they are essentially outcome measures unadjusted for variations in inputs; that is, they ignore the well-known fact that retention rates vary with student characteristics, field of study, institution size, and so forth. The natural rate approach compares actual retention rates to expected (or normal) rates, the latter calculated from system-wide models using pooled institutional data. He objects to this approach as well, on both conceptual and statistical grounds.

Conrad recommends focusing instead on “retention risk.” This approach uses historical data to develop models of stop-out risk at the institution level. The models use a wide array of predictor variables, not just those relating to student characteristics. They are then used to produce an estimate of the stop-out risk faced by each individual student. These estimates are rolled up to produce an estimate of retention risk for the institution. The advantage of the approach is that it provides information that institutions can use to develop practices for managing retention of these students.

Conrad illustrates this approach by analyzing data on the “time-to-stop-out” for direct-entry, first-year undergraduates entering York University from fall 1996 through fall 2006. The empirical results were not available at the time of writing (December 2009), but the paper will be published in 2010.

3.4.2 | Observations and HEQCO Research Underway

The work by Finnie and colleagues at MESA group, using the YITS data as source, has altered our understanding of persistence in postsecondary education in Canada. Once transfers and temporary stop-outs are factored in,

33 The volume by Finnie et al. (2008) provides an extensive overview of recent Canadian literature.

actual drop-out rates are significantly lower than those traditionally reported. We also know significantly more about how persistence varies among population groups and about factors behind students' decisions not to complete their studies.

These results are from national data and, because of Ontario's unique population mix and its similarly unique system of colleges and universities, we require further research at the provincial level. HEQCO has a number of projects underway aimed at understanding the determinants of retention and graduation rates in Ontario PSE and at identifying promising practices that would lower drop-out rates.

A group of seven Ontario colleges and universities recently formed a Working Group, and are collaborating on a study that will begin with the incoming cohort of September 2010. The foundation for this study is the project by Conrad (forthcoming) noted above. Participating institutions plan to link their administrative data with the results of a student survey and, in the process, to develop a prototype for an "early warning" system that could be employed to help PSE institutions mitigate retention risks at the individual student level. In addition to a number of specific at-risk populations, the Working Group has identified the following themes that they hope to explore further to determine their impact on retention risk: emotional intelligence, social and cultural capital, goals and commitments, academic preparedness, and expectations.

A separate consortium of colleges in the Greater Toronto Area will also examine determinants of retention and graduation rates. The group will focus on leavers, defined as those who were full-time postsecondary students enrolled in any program during the last three years but did not graduate from their institutions and are not currently enrolled at the time of the survey. Specific research questions include, but are not limited to, the following:

- What pathways did the leavers pursue after dropping out of their programs?
- What are the primary and secondary reasons indicated by college leavers that contributed to early departure?
- Are there any significant differences in the profiles of college leavers? What factors explain these differences?
- Are there subgroups of leavers for whom we can recommend remedies?

The project will involve a literature review and a survey

of early leavers. Relevant background data will be drawn from administrative records, and results will be available at the aggregate level for purposes of public reporting.

3.5 | Improving Teaching and Learning

An important part of HEQCO's mandate is to work with colleges and universities to improve teaching and learning.

Our first major venture in this direction resulted in *Taking Stock: Research on Teaching and Learning in Higher Education* (Christensen Hughes and Mighty, forthcoming). *Taking Stock* is the product of a conference held at the University of Guelph in March 2008. The conference was supported by HEQCO and organized by Professors Julia Christensen Hughes and Joy Mighty.

The volume includes 15 papers in total, organized in five major sections: Setting the stage, What we know about student learning, What we know about how teaching and learning impact one another, What we know about exemplary teaching practices, and Towards evidence-based practice. Each section contains a summary paper. We hope and expect that *Taking Stock* will initiate a wide-ranging discussion on ways to enhance teaching and learning in Ontario's colleges and universities.

The following are a few other n... initiatives. For further examples of ongoing research see the HEQCO website: www.heqco.ca.

3.5.1 | The NSSE Interventions Project

This project is led by Chris Conway of Queen's University, and the following summary and findings are based on his preliminary reports. The final project report is expected soon and will be available on the HEQCO website.

Universities in the United States and Canada have used NSSE to make university-wide comparisons of individual universities and groups of universities with respect to key engagement themes. As mentioned previously, significant differences in benchmark and item score exist both between universities in Canada and the United States and among universities within Canada. To the extent that the data have permitted, universities have explored possible explanations for these differences, and they have examined their own practices in an attempt to explain relative strengths and weaknesses with respect to student engagement. More recently, universities have drilled down into their own NSSE

responses to explore engagement differences across programs and types of students.

Both these approaches acknowledge that engagement differences exist among and within universities; the primary goal of the NSSE Interventions Project is to assess whether NSSE is an appropriate tool to measure the effects on student engagement of program and service improvements that universities have implemented. More specifically, the goals of the project are the design, implementation, assessment, and documentation of a series of interventions related to student engagement at several Ontario universities in order to inform policy-making with respect to the applications of NSSE to quality and accountability. These goals reflect the absence of widespread information-sharing on promising practices in the design and implementation of interventions; the desire to develop clusters of intervention design and assessment expertise within Ontario universities; the difficulties of implementing rigorous experimental designs in a university setting; and the need to assess various data sources and measures against which engagement levels can best be reported.

The 10 relatively modest intervention projects (proposed and developed by each of the participating universities, and assessed and selected by a steering committee) include:

- Development of a TA mentorship model in five academic units to improve student perceptions toward TA contributions as measured by NSSE and pre-existing focus group research.
- Implementation of supported learning groups in six high-risk first-year courses in order to improve student retention and the development of students' learning skills.
- Introduction of a faculty-wide first-year learning community involving common course timetabling, student mentoring, and group study sessions to facilitate student integration into a large faculty and university.
- Delivery enhancements in a large introductory Psychology course to expose participants to research and professional practice issues in order to overcome limited student-faculty interaction as demonstrated by NSSE results.
- Implementation of a faculty-wide "intrusive" advising program led by faculty members and student mentors to address comparatively low engagement scores with respect to social and academic integration of first-year students.

The statistical assessment of each intervention employed the best available data from multiple sources (e.g., NSSE, the NSSE-related surveys BCSSE and CLASSE, academic performance, student demographic and academic status), using several experimental designs (successive cohorts, cross-sectional pre- and post-measures) that accommodate self-selection bias and several other problems that typically plague program and service assessment.

This project has generated several outcomes and permits the following conclusions:

- Some promising (and some less-promising) data sources have been identified. Key among these are the limited value of NSSE as an assessment tool for *small-scale* engagement interventions, and the apparently higher value of CLASSE as a tool for assessing course-based interventions.
- Numerous effective assessment design and implementation practices have emerged, including methodology for matching control and experimental groups, determining sample sizes and the overall scale of interventions, and selecting control groups and most-likely-to-succeed experimental designs.
- Given the resources available for implementing service and academic innovations, the relatively high cost of at least initial intervention design and implementation efforts, and the relative stability of NSSE scores, it is unlikely that significant increases in NSSE performance will be achieved within Ontario universities in the short term.
- Clusters of intervention expertise that have developed within participating universities, and the growing interest in engagement (and NSSE) as a measure of quality suggest that university implementation activity will increase over time.

3.5.2 | Faculty Engagement in Teaching

A second example is a project on how faculty members engage in teaching development activities, and what they do to improve it. This project is led by Fred Evers of the University of Guelph and involves six universities: Guelph, Lakehead, Laurentian, Queen's, Ryerson, and the University of Western Ontario. The first product is a review of the literature on faculty development in learning about teaching, viewed through four lenses—self, students, colleagues, and theory (Evers, Hall, Britnell, Brouckerhoff-Macdonald, Carter, Dawson, Kerr, Mighty, Siddall, & Wolf, 2009).

The second phase involves a survey of faculty at the six universities, with questions informed by the literature review. The survey is structured to document existing knowledge, explore new areas of knowledge, and identify gaps. In particular, it will focus on where and how faculty members acquire their knowledge and skills regarding teaching. The results of this project will be available in spring 2010.

3.5.3 | Comparing Student Expectations and Experiences

NSSE is not the only engagement survey. The *Beginning College Survey of Student Engagement* (BCSSE) collects data on the expectations that beginning students have as they enter university. The *Faculty Survey of Student Engagement* (FSSE) collects instructors' impressions of student motivations and experiences. Comparing FSSE results with NSSE results permits a comparison of student and faculty perceptions of the student experience.

The University of Guelph conducted all three surveys. In an HEQCO-supported study, Mancuso, Desmarais, Parkinson, and Pettigrew (forthcoming) drew on these survey results to compare two sets of expectations and experiences. The first exercise compares students' expectations upon entering university to their actual experiences during their first year. The difference yields what they term a "disappointment index," calculated by subtracting the NSSE mean for each survey question from the corresponding BCSSE mean. The second exercise compares students' perceptions of first-year learning experiences with impressions held by faculty members. This difference is termed a "misunderstanding index," calculated by subtracting the FSSE mean for each survey question from the corresponding NSSE mean.

The authors find substantial and persistent differences in the responses to the three surveys. Students rate their first-year experience as less engaging than they had expected it to be. Specifically, they do not have to work as hard, they do fewer drafts of papers and assignments before submitting them, they participate less frequently in class and make fewer class presentations, they have substantially less interaction with faculty, and so forth. The sole exception is that the use of and emphasis on information technology is more pervasive than expected.

The results for the misunderstanding gap are strongly bimodal. When the activity does not involve direct interaction, faculty members are quite skeptical of student effort and investment in learning activities. With respect to student-faculty interaction, faculty members are more positive and report greater frequency of contact and greater value from the contact than do students. Students report less contact than expected; faculty members disagree.

Two final sets of questions report expectations and experiences with respect to "gains in practical skills" and "gains in general education." The indices in these cases are near zero, and in some cases even switch sign. The authors conclude from this finding that "[D]espite measurable disappointment and misunderstanding, the respondents reported overall satisfaction and engagement—an acceptable result" (p. 21). The scores on specific questions point the way to improving student engagement.

3.5.4 | Evaluating Student Services

In our second annual review (HEQCO, 2009, p. 78), we noted that we would place considerable emphasis on research into student services. In addition to specific projects referenced in the course of this review, we launched an ambitious initiative in the fall of 2008. A call to colleges and universities for expressions of interest resulted in nearly 30 proposals. We selected 16 of these for funding—10 from universities, five from colleges, and one joint effort.

The objective in each case is to evaluate the effectiveness of student services in promoting persistence and educational quality. The projects can be grouped naturally into three clusters: first-year transition, skills-enhancement initiatives and targeted populations. The methodologies are a mixture of qualitative and quantitative research methods. We have just received preliminary results for the first projects and, after external review, copy editing, and translation are complete, we will post the reports on our website. The first reports from this group of research projects will be published by HEQCO in the spring of 2010. The preliminary findings have already suggested the extent to which lessons and best practices might already exist for student service initiatives at other postsecondary institutions:

- Nipissing University used administrative and survey data to assess a transition course, UNIV 1011, that has been offered for more than a decade to first-year "at-risk" students. While it appeared that the course had a positive impact on student retention from first to second year, university officials were somewhat surprised by the number of students who reported that they were not aware of the existence of UNIV 1011, or that the students in greatest need of the intervention were finding out about the course either too late to enrol or from sources other than their faculty and academic advisers (Carfagnini and Dunn, forthcoming).
- Carleton University employed a mixture of administrative data, surveys, and focus groups to assess their Peer Assisted Study

Sessions (PASS) program, which has also been in existence for nearly a decade and is now offered in more than 50 courses across a number of different faculties. In this case, the intervention targets “at risk” courses rather than students (that is, those with combined “D”, Fail, and Withdraw rates of more than 30%). While the data clearly demonstrated that student participation in PASS did improve grades and retention rates, nearly 80 per cent of eligible students in those classes still do not avail themselves of the benefits of PASS (Miles, Polovina-Vukovic, Littlejohn, and Marini, forthcoming).

3.5.5 | Knowledge Mobilization for Exemplary Teaching and Learning

Another major initiative aimed at enhancing the quality of teaching and learning in Ontario PSE is Knowledge Mobilization for Effective Teaching and Learning (KMETL). The project is led by Tom Carey, a Visiting Senior Scholar at HEQCO, building on his exploratory paper for HEQCO (Carey, 2008).

The primary purposes of the KMETL projects are to identify challenges to implementing better practices, promote best practices in teaching and learning and improve the learning experience and student success. A secondary goal is to develop ways for groups of faculty members to produce and share knowledge collaboratively, to create a legacy of knowledge products to inform/inspire colleagues, and to foster ongoing knowledge exchange networks for teaching.

KMETL currently has four projects underway. One is concerned with collaborative research on a developmental math course design and involves seven colleges. Faculty on the project team redesigned courses at their own colleges, focusing on the introduction of shared teams. As course redesigns are implemented and evaluated in subsequent semesters, the results will be shared to support further course redesign. The enhanced project is now being extended to three other Math areas.

The second pilot is a prototype from a research support team at Seneca College who identified and tested potential delivery options for a Prototype Knowledge Exchange Platform. A Steering Team from seven Ontario colleges and five Ontario universities provided a range of stakeholder expertise and perspectives to help guide its development. The prototype platform is now in use supporting the Colleges Ontario Specific Language Training program as well as other HEQCO pilot projects.

The third pilot is an Undergraduate Degree-Level Expectations (UDLEs) knowledge exchange. This is a pilot study for curriculum review and renewal to support student achievement of learning objectives for attaining a university degree. Faculty members from participating departments of languages and literatures at Ontario universities are working collaboratively with educational researchers and instructional design experts to adapt and apply leading-edge knowledge about the development, demonstration, and documentation of student capabilities.

In a fourth pilot, we are working with educational developers from colleges in Eastern Ontario to explore the impact of a Knowledge Exchange Network for faculty members engaged in curriculum development. HEQCO staff members are also supporting a collaborative project with educational developers across four Ontario universities to develop shared digital case studies of exemplary teaching practices to promote academic integrity.

3.5.6 | Work-Integrated Learning

In recent years in Ontario, there has been growing interest at both the secondary and the postsecondary level in expanding opportunities to combine academic learning at the postsecondary level with work-based training to better prepare PSE graduates for the labour market. Among the most commonly recognized options are apprenticeships in many of the trades, crafts, and occupations that tend to be heavily work-based, and co-op education programs that involve alternating semesters of academic classes with semester-long work-based experience, usually for pay and credit.

A group of Ontario colleges and universities partnered with HEQCO to form a Working Group, and a research team was recently contracted to undertake the data gathering. Incorporating information obtained from a literature review, from discussions with employers and coordinators of Co-op programs at colleges and universities, and from those involved in apprenticeship, internship, and other work-integrated learning (WIL) programs, the Working Group’s final report will attempt to provide a better understanding of the entire spectrum of WIL opportunities. Their report will also contain recommendations for a future study that might include interviews with postsecondary students and faculty. The ultimate goal is to better understand what opportunities are already available to Ontario students for combining academic learning with real-world job experience and training and, if there are gaps or challenges identified, what might be done to improve those opportunities.

considerable room for improvement. Since the publication of the *Second Annual Review and Research Plan*, we have conducted an extensive consultation and research process, and HEQCO researchers have participated in a joint working group with Ministry staff. This chapter reports on our work and recommendations to date.

4.1 | Basic Framework

We believe that an accountability framework has three key purposes:

- To report to the public on the performance of the PSE system relative to expectations.
- To provide a format for the Ministry and colleges and universities to use to record institutional priorities and to report on performances relative to expectations.
- To bring about change in the PSE system or in activities of individual institutions as appropriate.

Thus, the framework we recommend has three components:

1. system accountability
2. institution accountability
3. planning

The challenge is to design a framework that meets four key requirements. The first is to take full advantage of institutional autonomy. This delegation leaves delivery of PSE activities to those with the expertise and experience —namely colleges, universities, and other educational institutions. This would provide scope for experimentation and innovation in how education and research are delivered and provide diversity in student choices. The other requirements follow directly from the three purposes: to ensure that system-wide objectives are met, to support an appropriate degree of monitoring of colleges and universities, and to provide clear direction of how change, where required, is to be achieved.

It is useful, in passing, to comment briefly on what an accountability framework is not. It is not intended to be a source of information for students making decisions about postsecondary education. This type of information is essential, but it does not belong in the accountability agreements. For the purpose of better informing prospective students, the focus instead must be on Common University Data Ontario (CUDO), institutions' websites, the OSAP website, and so forth. Further, the framework is not meant as a device for ranking colleges and universities.

The first three chapters in this review were concerned with evaluating Ontario's PSE system. This task involved finding ways to measure performance, to choose targets or benchmarks, and then to evaluate actual outcomes against these desired outcomes. One product of these chapters is a preliminary set of indicators with which to populate the proposed new accountability framework. As we collate and discuss these indicators in this chapter, we take care to distinguish between those that could be employed immediately and those that would require further research and refinement.

4.2 | System Accountability

There are four steps in designing an accountability component for the postsecondary education system:

1. Define broad objectives for the PSE system
2. Choose appropriate indicators and targets
3. Devise a process for evaluating performance against those targets
4. Develop a procedure for reporting to the public in a clear and transparent fashion

As noted in the Preface, we believe that the following statements constitute an ambitious but realistic vision for Ontario postsecondary education:

1. **Human Capital:** Ensure Ontario has the human capital required to compete and prosper in a global knowledge-based economy.
2. **Accessibility:** Make postsecondary education and training accessible to all qualified Ontarians.
3. **Educational Quality:** Ensure postsecondary education and training programs prepare students for success in life.
4. **Research and Innovation:** Enhance the province's capacity for research and innovation.

Table 4.1 provides a schematic summary of the recommended accountability framework at the system level. The first column lists the system goals. The second column lists the system performance indicators used or proposed in chapters 1 to 3. For each indicator, column 3 indicates whether the data are available currently. Where information is not available, column 4 notes the

work underway or planned to fill the data gaps. The final column provides brief comments. Table 4.1 is very much a work-in-progress, and will be revised on a regular basis, as appropriate.

Obviously, system-level performance is the aggregate of individual college and university activities and accomplishments. Thus, setting annual targets for the four sets of core indicators should be an interactive process between the Ministry and sector stakeholders, assisted by HEQCO research activity as appropriate. These targets should be realistic, multi-year, take inter-relationships among goals into account (particularly when trade-off relationships exist), and have their values adjusted over time as appropriate.

Each institution would agree to a target for each core indicator or for the variables that enter into calculating the indicator. The assignments would reflect the unique missions and visions of colleges and universities; that is, institutions would contribute to achieving system-wide goals according to their comparative advantages. Importantly, individual assignments would add up to system-level targets.

At year's end, the institutions would assemble their data for the system indicators and make them available to the Ministry. Most of the information necessary to construct system indicators is available centrally, or at least will be when data gaps are attended to. The Ministry would report to the public on achievement vis-à-vis performance indicators, as per government policy. HEQCO would use this sector-level information to publish an annual evaluation of PSE system performance relative to the goals.

In all cases, the observations of performance against targets would be quantitative, but the evaluation should be qualitative. A PSE system is too complex for small quantitative variations to be meaningful. For example, performance in a given year in each area could be described as: "exceeding targets," "generally meeting targets," "falling short of targets" or "falling seriously short of targets." The annual evaluation would be used by the Ministry and stakeholders, in consultation, to revise goals, targets, and policies as appropriate for the postsecondary education and training system.

4.3 | Institution Accountability

The institution accountability components of the proposed framework would be designed with two purposes in mind. The first would be to determine if the

institution is meeting its expected contribution to achieving system-wide goals and targets. The second is to determine if it is meeting its individual goals and targets.

Reporting on core indicators was discussed in the preceding section. Mission-specific indicators would reflect institutional diversity and autonomy. Each institution works diligently to develop a strategic plan that is approved by its governing bodies. Their institutional goals should be recognized and targets agreed to, based on their stated intentions. Thus the number and type of indicators would vary, reflecting the diversity of the stated missions of the institutions.

Ideally, performance indicators would be measures of output or final outcomes because these are the variables of real interest, and are most easily understood by stakeholders and the general public. In some instances, however, it may be necessary to use input or process variables as proxy measures. If so, it is essential to understand their limitations.

Institutions would submit a report to the Ministry each year, outlining performance relative to goals. Measuring performance against targets will be quantitative, but the evaluation should be qualitative. As with system-level indicators, activities in the postsecondary education sector are too complex for small quantitative variations to be meaningful. Summary evaluations such as "exceeding targets," "meeting targets," "falling short of targets," or "falling seriously short of targets" are appropriate.

To report yearly performance outcomes, institutions should be provided with a common template (perhaps one template for colleges and another for universities) for a report that provides concise information and allows institutions to self-evaluate. The completed templates should be posted on each institution's website as a means of public reporting, with any further reporting left to the discretion of the institution. The reports will provide feedback into the revision of goals, targets, and policies, as appropriate.

4.4 | Planning Component

Currently, targets are set with individual institutions, and overall reporting on the achievement of those targets is not done on the system as a whole. Analysis of reports on performance against planned targets can and should become more sophisticated, with deeper analysis of results at the institutional level.

Chapter 4

Accountability

Accountability was one of the three key objectives set out in *Reaching Higher*. The expectations were that targets and measures would be set to monitor the quality and performance of the postsecondary sector and that agreements between the Ministry and postsecondary institutions would be in place to ensure that the objectives would be achieved. Funding was to be tied to results.

The accountability objective was first implemented through the Interim Accountability Agreements for 2005-06. This interim arrangement was followed by Multi-Year Accountability Agreements (MYAAs), which were in place from 2006-07 to 2008-09 and then extended by one year until a new framework could be put in place. HEQCO was asked to provide advice on a new accountability framework in the memorandum of understanding (MOU) that had established the Council.³⁴

In our *Second Annual Review and Research Plan* (HEQCO, 2009), we reviewed the MYAAs in some detail and concluded that there was much to like about the agreements, but that there was

34 As per section 1.4.4.

TABLE 4.1**Schematic Summary of the Recommended Accountability Framework at the System Level**

Source: HEQCO Analysis

Goal	Potential Indicators	Data Available Now?	Filling Data Gaps	Comments
Human Capital Supply	Total FTE college and university enrolment, ages 18-24	Yes		To calculate PSE attainment rates for new labour force entrants
	System average college and university graduation rates	Yes	May need to ensure definitions consistent; e.g. 3-year and 4-year degrees	To calculate PSE attainment rates for new labour force entrants
	Total FTE college and university enrolment, ages 25+	Yes		To track adult learners
	Total apprenticeship registrations	Yes		May want to choose narrower age cohort
	Apprenticeship completion rate	Yes		
Human Capital Knowledge and Skills	System average and confidence intervals for question 33 of College Graduate Satisfaction Survey	Yes	Internal HEQCO work underway to understand determinants of responses	
	System average and confidence intervals for question 74 of College Graduate Satisfaction Survey	Yes		
	Relevant question from university graduate survey if available	?		Consider implementing a university graduate survey
	Percentage of university enrolment in graduate or professional programs	Yes		
	Average unemployment rate of college graduates 6 months after graduation relative to rate for those with no PSE		Three projects using NGS data	Need to identify appropriate age cohort for comparison
	Average unemployment rate of university graduates 6 months and 2 years after graduation relative to rate for those with no PSE		Three projects using NGS data	Need to identify appropriate age cohort for comparison
	Average unemployment rate of apprentices relative to rate for those with no PSE			Need to identify appropriate age cohort for comparison
Accessibility TARGET GROUPS: • Low income • Aboriginal • First generation • Persons with disabilities • Francophones • Other? • Indicators for each group	Total FTE college and university enrolment, ages 18-24	No	HEQCO RFPs • Mining national data sets • Data linking • Longitudinal survey	
	System average college and university graduation rates	No	HEQCO RFPs • Mining national data sets • Data linking • Longitudinal survey	
	Total apprenticeship registrations	No		
	Apprenticeship completion rates	No		

Goal	Potential Indicators	Data Available Now?	Filling Data Gaps	Comments
Educational Quality	Summary reporting of college quality assurance interventions	Yes		Narrative with simple summary statistics on incidence of follow up actions required
	Summary reporting of university quality assurance interventions	Yes		Narrative with simple summary statistics on incidence of follow up actions required
	System average and confidence intervals for question 47 of College Student Satisfaction Survey	Yes	Internal HEQCO research underway to understand determinants of responses	
	OR			
	Sector averages and confidence intervals for questions 14, 26, 44 and 45 of College Satisfaction Survey	Yes	Internal HEQCO research underway to understand determinants of responses	
	System average and confidence intervals for question 34 of College Graduate Satisfaction Survey	Yes	Internal HEQCO research underway to understand determinants of responses	
	System average, highest and lowest scores on NSSE summary question	Yes	NSSE national project underway to understand determinants of engagement responses	Possibly construct measures of "deep learning" (Pike Scalets)
	OR			
	System average, highest and lowest scores for 5 benchmarks	Yes	NSSE national project underway to understand determinants of engagement responses	Possibly construct measures of "deep learning" (Pike Scalets)
	System average, highest and lowest scores on CGPSS summary question	Yes		Considering a project to investigate determinant of responses
Research and Innovation	To be developed			
Compliance	SAG Other			

Annual stakeholder consultations to determine sector-wide targets are both desirable and feasible. Conversations could be based on reporting by HEQCO and others on system performance relative to expectations. The government could build upon this to collaboratively establish system-wide goals and targets. Annual consultations with government and institutions should take place to determine how each institution will contribute to system-wide goals by setting institution-specific core targets that recognize the differentiated missions of institutions. Institutional consultations would also take place on institution-specific goals relative to objectives.

To ensure the planning process is effective, the Ministry should rely on incentives, wherever possible, rather than issue explicit direction. Any links instituted between performance and either funding or regulations should be clear and predictable, and the commitment from both government and institutions should be realistic.

The nature of this proposed framework provides an inherent feedback loop where the results inform the next phase of planning. While the planning process itself would require further detailed development, the general outline would be as follows:

- The Ministry and institutions, with HEQCO input, would establish PSE system targets for the next three years.
- The Ministry would meet with individual institutions to determine their targets in relation to the core indicators and to set mission-specific indicators.
- Following report-backs the next year, HEQCO would use aggregate data to report on system-wide performance relative to expectations.
- The Ministry would follow up with the institutions to discuss performance.
- At that time a revision of both system-wide and mission-specific targets could occur in planning for the next three years.

This process is captured in Figure 4.1.

4.5 | Observations and HEQCO Research Underway

Though built on the foundation of the current MYAAs, the proposed accountability framework includes a number of differences that we believe make it a more robust instrument to report system-wide performance

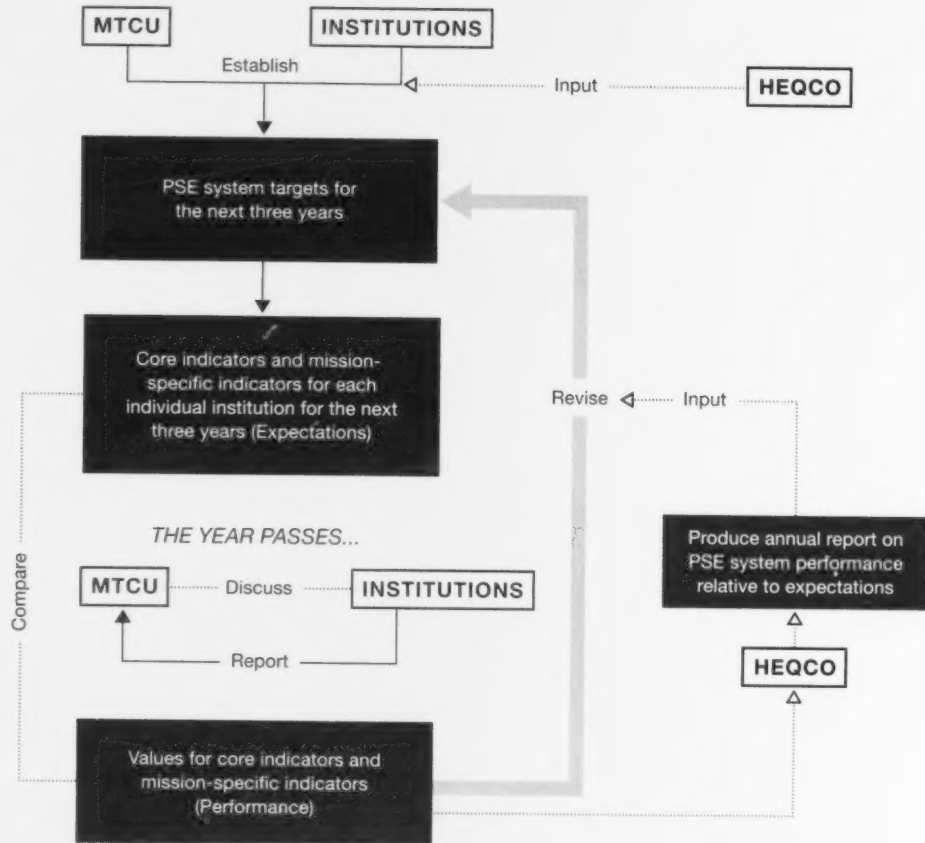
and institutional activity, and to support collaborative planning.

HEQCO's recommendations would result in an accountability framework which:

- sets explicit targets for PSE system goals;
- creates a consultative process to establish system targets (Ministry, institutions, HEQCO);
- allows HEQCO to report annually on system performance relative to targets;
- supports a distinct two-part reporting framework for institutions, supporting:
 - core, system-wide indicators;
 - individual, mission-specific indicators drawn directly from institutions' strategic plans;
- allows individual targets for core indicators to vary with institutional missions;
- supports consistent definitions and data for core performance indicators;
- pays explicit attention to the "adding up" issue for core indicators;
- provides for one-on-one discussions between Ministry and institutions,
 - prior to an academic year, to establish targets for core indicators, and goals and targets for mission-specific indicators; and,
 - after an academic year to discuss results and plans;
- encourages qualitative as well as quantitative evaluation of performance relative to targets; and
- creates an explicit link between the accountability components and the planning component.

We will continue to work with the Ministry and colleges and universities as appropriate to design and implement the new MYAAs. Much of the research reported in chapters 1-3 is intended to support this activity. Our efforts to fill data gaps in PSE participation and pathways are particularly relevant, but we also single out the research on educational quality indicators and on the alignment of learning outcomes with labour market needs.

FIGURE 4.1
The Annual Accountability Process



This chapter deals with options for responding to these challenges. We begin with two proposals that are frequently cited as solutions to capacity and quality issues: enhanced college-university collaboration and greater funding.³⁵ We conclude that progress on both fronts is important, but that these initiatives alone are likely not sufficient. Accordingly, we move on to examine the case for more fundamental system change, which was set out in a recent HEQCO-sponsored monograph (Clark et al., 2009). We find their diagnosis compelling, but we do not believe there is sufficient evidence to choose among the solutions they offer. Thus, we conclude by outlining the research we have initiated to provide the missing evidence.

5.1 | College-University Collaboration

The Rae Review and the subsequent five-year plan, *Reaching Higher*, both pointed to improved pathways for students and increased collaboration between colleges and universities as necessary reforms. These actions were seen as contributing to enhanced accessibility and greater educational quality.

Colleges Ontario (2009b) lists improving student mobility and expanding student choice as the first of four goals it proposes that the government adopt to achieve transformational change in Ontario higher education. The Council of Ontario Universities (December, 2009) puts much less emphasis on collaboration and credit transfers in its brief to the Ministry, but does state that Ontario universities are committed to expanding pathways for students to transfer credits from other institutions.

The Second Annual Review and Research Plan (HEQCO, 2009) dealt at some length with inter-institutional collaboration, focusing on collaborative agreements and pathways. This section updates the earlier discussion, drawing on recent research by HEQCO and others.

5.1.1 | Collaborative Agreements

The Ontario College-University Transfer Guide (OCUTG)³⁶ contains an inventory of college-university collaborative agreements. There were over 350 agreements registered on November 16, 2009, compared to around 300 a year ago.³⁷ The profile of agreements did not change over the period. By category, the great majority of the agreements are bilateral; by type, the great majority are for degree completion. Very few agreements have colleges as the

receiving institution. The most common disciplines having agreements are in the applied arts, the liberal arts, and the humanities, followed by the social sciences, the social services, and business and commerce.

Collaborative arrangements are clearly an important part of the Ontario postsecondary education landscape, and they deserve to be supported and encouraged in instances where institutions wish to introduce new programs and have developed compelling academic and financial cases for them. HEQCO welcomes opportunities to work with institutions that have collaborative programs in place to evaluate how effectively they have met their academic and financial objectives.

We remain unconvinced, however, that collaborative arrangements can be a primary tool for meeting the challenges in Ontario's postsecondary education system, at least under current funding arrangements. Such collaboration requires the engagement of specific academic leaders, so faces stiff competition from other institutional priorities. Even where there is a will to proceed, the costs of negotiating and administering the agreements are high (Boggs and Trick, 2009).

5.1.2 | Pathways

The traditional view of PSE participation as a simple and linear process is no longer the norm. Postsecondary students frequently switch programs, institutions, even PSE sectors, and they might switch either before or after graduation from their initial program. These pathways are being forged despite the fact that Ontario's postsecondary system was originally designed to have separate college and university sectors with little movement between them.³⁸ Over the past two decades, there have been numerous calls to facilitate

35 See Colleges Ontario (2009b) and Council of Ontario Universities (2009b) for examples.

36 Available at <http://www.ocutg.on.ca/>.

37 The data for 2008 are taken from HEQCO, 2009, p. 94. Some of this increase may reflect more inclusive reporting.

38 Nevertheless, the option for mobility between the sectors was left open as evidenced by a statement made by William Davis, the Education Minister at the time of the establishment of Ontario's colleges: "No able and qualified student should be prevented from going on from a College of Applied Arts and Technology to a university" (Ontario Department of Education, 1967: 13-14).

this movement by creating a more seamless PSE system in Ontario. A steering committee on credit transfer was established in 2009, consisting of representatives from MTCU, CO, COU, and Ontario's three postsecondary student organizations and charged with the design and implementation of an Ontario credit transfer system.

Efforts to produce a full empirical record of various PSE pathways have faced the challenge of limited system-wide sources of information on student mobility. Information has been pieced together from a number of sources described in Table 5.1. Each of the instruments or sources of information listed provides only a portion of the transfer picture, and the data across the sources are not easily linked with other measures such as academic performance, course selection, or employment outcomes. Interjurisdictional comparisons of the rate of postsecondary transfer are also difficult to calculate because of the varied definitions and calculations for transfer used across Canada and in the United States (Decock, 2004, p. 3).

The most complete information available on the decisions made by college graduates to continue in postsecondary studies is derived from the MTCU's *Graduate Satisfaction Survey*.³⁹ In 2006-2007, 27 per cent of college graduates reported that they were continuing their education within six months of graduation. Most continuers (14%) returned to their own college for further education, 2 per cent transferred to another college in Ontario, and approximately 7 per cent continued at an Ontario university. The remainder continued at a non-Ontario university or in another form of PSE (Decock, McCloy, and Liu, forthcoming).

The *Graduate Satisfaction Survey* also provides a profile of those students furthering their education. College graduates who transfer to a university are more likely to be female, under age 22, graduating with a Basic Diploma or an Advanced Diploma, and graduating from a larger college most likely in Metropolitan Toronto or in the central region of Ontario. Although York University and Ryerson University report the highest numbers of college graduates attending those institutions, two northern Ontario universities, Nipissing and Laurentian, enrol a higher percentage of college graduates as a proportion of first-year university registrants. The top originating college programs include Early Childhood Education, General Arts and Sciences (1-year, 2-year), Police Foundations, Social Service Worker, and Business

Administration. These college graduates are also more likely to enrol in a field of study related to their prior studies. The top university destination programs include Commerce, Management, Business Administration, Administrative Studies, Sciences, and Psychology (Decock et al., forthcoming).

For individuals from under-represented groups such as Aboriginal students, students with disabilities, first generation students, and students from low-income families, it has been suggested that improving transfer pathways from college to university would provide a more equitable opportunity to obtain a degree. For example, for students from the lowest income categories in Canada, the participation rate is about 50 per cent greater in colleges than in universities (Drolet, 2005, p. 30). By improving the opportunities for these college students to continue in university programs, we can enhance the overall equity of the PSE system. In order to determine whether college students who transfer to university are more likely to belong to under-represented groups, HEQCO recently commissioned Academica Group Inc. to review the data collected over the past five years through their University Applicant Survey. The data indicated that, as suspected, transfer students were more likely than other applicants to come from under-represented groups.⁴⁰ These preliminary data suggest that college students from under-represented groups are taking advantage of transfer opportunities to pursue further education in university.

Understanding students' aspirations or goals when initially applying for college may provide some insight into their anticipated pathways. The perception of some secondary school students applying to PSE is that college plays a transitional role to university. If not accepted into any of the university programs they chose, 6 per cent of year 4 and 12 per cent of year 5 secondary school students indicated that they would apply to college in order transfer to university later (King and Warren, 2006). According to the *Student Satisfaction Survey*, almost one quarter of first-year college students in 2008-2009 considered the main goal of enrolling in their program was to prepare for further college or university study. These percentages vary with the credential being pursued and with the type of program. Some college certificates and diplomas are considered preparatory to related studies in other postsecondary programs and institutions, while others are more career-oriented programs that lead immediately to the labour

39 See also Colleges Ontario (2008b, 2009c).

40 Results must be interpreted with caution due to the low numbers of transfer students in each group.

TABLE 5.1
Sources of Information on Student Transfer/Mobility in PSE
Source: HEOCO Analysis

Instrument or Source	Description	Response Rate	Information Relating to Transfer	Limitations
College Graduate Satisfaction Survey MTCU	annual, telephone survey administered 6 months after graduation	75%	college program of graduation, current program, reasons for pursuing further education new questions relating to transfer process & experience	no documentation for those who may have furthered their higher education more than six months after graduation no documentation for those who may have transferred before graduation
National Survey on Student Engagement NSSE	annual, online survey (in Canada) survey first and fourth year students	43% (average)	educational background of university students	not all universities participate each year no documentation on credential attained or field of study
College Student Satisfaction Survey MTCU	annual, in-class, paper survey administered during second semester	68%	previous education, current program and credential, main goal for enrolling	anonymous survey, results cannot be linked to other sources cannot distinguish Canadian from foreign credentials
Ontario University Graduate Survey OUAC on behalf of COU & MTCU	annual, mailed, paper survey administered two years after graduation	24%	proportion of graduates enrolled in further education by program six months & two years after graduation	no documentation for those who may have transferred before graduation relies on respondent recall of status at six months after graduation
College and University Applicant Surveys Academica Group, Inc.	annual, online survey administered through application centers during application process	18-26%	applicants indicate whether they have previously attended college or university reasons for applying	not all universities participate each year surveys applicants only
National Graduate Survey HRSDC & Statistics Canada	telephone survey of graduates every five years administered to graduates two years and again at five years after graduation	68%	education pathways of PSE graduates (both before program and after graduation)	no documentation for those who may have transferred before graduation provincial sample sizes of transfer students may be small

Instrument or Source	Description	Response Rate	Information Relating to Transfer	Limitations
Youth in Transition Survey HRSDC & Statistics Canada	national, longitudinal, survey 2 cohorts: A & B administered to students in each cohort every two years first cycle of cohort A administered in schools, remaining cycles administered as telephone survey all cycles of cohort B administered by telephone	81% (overall average for cohort B, Cycle 1) 79% (average of both cohorts, Cycle 5)	educational pathways/ activities of students data includes those who transfer prior to graduation	provincial sample sizes of transfer students may be small numbers of survey participants decline with each cycle
Postsecondary Student Information System data project Statistics Canada	national, annual survey of administrative data from Canadian public postsecondary institutions	proposed census	information on PSE enrolment, attainment, programs, courses aims to produce longitudinal PSE history at student level	project is not near completion all institutions not yet participating
Ontario's College and University Application Centres OCAS, OUAC	administrative data		applicants indicate whether they have previously attended college or university, for how long & whether credential obtained (recent question)	data on previous PSE not always available if not required for admission to program not all who have applied for advanced standing apply through application centers not all institutions use centers for part-time applicants
Institution's own surveys, research & administrative records	administrative, survey & research data		may provide information on experience/success of students transferring into institution	institution-specific data most do not follow students once they leave the institution
College University Consortium Council	administrative & research data		number and variety of programs	
Ontario College University Transfer Guide CUCC	administrative data		category and number of articulation agreements	no evidence of frequency of individual agreements
Ontario Education Number	administrative data		potential to facilitate linking of data sets & administrative data, & tracking of students	used only in K-12 education system and by application centers not widely used in PSE sector

market. The aspirations of both groups of students differ.

The timing when college graduates make the decision to extend their education provides insight into their aspirations for the future. According to the *Graduate Satisfaction Survey*, many college graduates (43%) made their decision to pursue additional education before enrolling in college. Again, differences in patterns of decision timing occur by program of origin. For students who enrolled in programs designed to be preparatory, such as pre-health or General Arts and Science programs, 72 per cent decided before entering their college program that they would be continuing their education after graduation. It is also interesting to note that 45 per cent of all graduates who continued their education indicated that they do not think they would have been accepted without their college credential. This was particularly the case for graduates of preparatory programs who went on to university, 72 per cent indicated they do not believe they would have been accepted without their credential.

Nevertheless, in combining these findings with those on the timing of the transfer decision, it appears that students may be using the college preparatory programs as a transfer vehicle to university because they do not believe they would otherwise have qualified for admission to university programs (Decock et al., forthcoming).

The satisfaction and academic success of transfer students address the issue of learning quality and can provide insight into the strengths or gaps in the current system of institutional collaboration. *Graduate Satisfaction Survey* results indicate that most graduates, regardless of destination, had high levels of satisfaction with the transition experience, with their academic preparation for their current program, and with their achievement of personal goals after graduation (Decock et al., forthcoming).

In contrast to these survey findings, some qualitative studies indicate that considerable student confusion exists about college transfer and credit selection, particularly the type and number of courses being approved and the lack of clear, accessible, and consistent information on the transfer process (Gawley and McGowan, 2006; McGowan and Gawley, 2006). The *Graduate Satisfaction Survey* indicates that less than one-third of graduates knew their transfer credit status before enrolling at their destination institution, which confirms that there are issues either with the information available to prospective transfer students or with how students use that information. Most college

graduates, regardless of destination, use the websites of institutions and consult with faculty members and counsellors to obtain most of their information on transfer (Decock et al., forthcoming).

The same qualitative research found that some students experienced difficulty integrating into the social and academic communities within an institution, challenges that could be attributed in part to differences between the cultures and missions of the sending and receiving institutions. The transfer students who experienced difficulties appeared unaware of and/or unprepared for such differences in culture. In addition, they did not use the support services for transfer students effectively or they considered them insufficient to ease the transition process (Gawley and McGowan, 2006; Townsend and Wilson, 2006).

The success of college transfer students at Ontario universities has been measured by comparing both graduation rates and grades of college transfer students with direct entry students (Bell, 1995; Nipissing University and CUCC, 2007; York University and CUCC, 2008). Recent results at Nipissing showed that college transfer students had similar GPAs in university as direct entry students, similar to previous research performed at York (Bell, 1995). However, in all three studies, graduation rates were lower for the college transfer students. As would be expected, however, the provision of advanced standing or transfer credit seem to impact graduation rate. The graduation rate in the Nipissing study was higher for those who received advanced standing than for the whole college transfer group. Similarly, the recent research at York (York University and CUCC, 2008) revealed that the proportion of graduating transfer students has increased over time and that they are graduating earlier than a decade ago, which reflects the fact that students who enrolled more recently in university had more transfer credits than their predecessors.

The discussion to this point has focused on the college to college and the college to university pathways, for which some research has begun in Ontario. Less is known about the university to college pathway. Approximately 17 per cent of college students reported on the *Student Satisfaction Survey* in 2007 that they had prior education in university. These students were more likely to be female, older than 25 years of age, and have a first language other than French or English. They were more likely to fit the following profile: be enrolled in a post-basic certificate, have as their main goal to prepare for employment or a specific career; to have graduated from university faculties of Social Sciences, Humanities, or Business and Commerce, and

to be transferring to college program clusters related to Government, Real Estate, Library, and Public Relations (CUCC, 2007: pp. 17-18).

5.1.3 | Observations and Ongoing HEQCO Research

Enhanced college-university collaboration is a necessary component of any supply-side strategy for Ontario's postsecondary education system. Students value it, witness the amount of mobility and collaborative programs already in the system. The Ministry signaled its interest by establishing the steering committee on credit transfer with an explicit mandate. Colleges Ontario has made it one of its recommended objectives for system reform. Even the universities, traditionally the most resistant to the idea, have indicated their support in principle for accepting credits from other institutions.

The focus thus shifts from *whether* to proceed to *how* to do so. The Ministry and the key stakeholders have taken the lead through the steering committee. HEQCO stands ready to assist as appropriate in providing evidence-based advice on specific proposals from the committee.

HEQCO has a number of projects underway or planned that will feed into this discussion. Some of these projects are designed to evaluate the effectiveness of collaborative student service programs and, as noted above, we would welcome further expressions of interest. The working group on student retention will consider links between transfers and academic success. A multi-year project led by Dan Lang and Henry Decock is examining factors behind students' decisions to transfer from one institution to another.

Most significant perhaps is the work to fill data gaps noted throughout earlier chapters and outlined in some detail in chapter 2 (Section 2.3). As with several other key policy issues in Ontario, decisions on how to proceed on the credit transfer front are hampered by lack of comprehensive and reliable system-level information.

5.2 | Funding

The Rae Task Force report endorsed the view that the Ontario PSE system was underfunded relative to its counterparts in other provinces and countries. *Reaching Higher* acted on this advice by allocating a net increase of \$1.6 billion in funding to the sector over

a 5-year period, with \$1.2 billion of this amount going as operating grants to college and universities.

As noted in the Preface, this funding commitment ends this fiscal year and a new framework must be put in place. There are four main issues to resolve:

1. How much funding is required if the goals set for the postsecondary education system are to be achieved?
2. How much of this funding should come from government grants, from tuition and other fees, and from other sources?
3. How should government grants be structured?
4. What constraints, if any, should be placed on setting tuition and other fees?

5.2.1 | Revenue Trends

As a first step in addressing these questions, HEQCO issued an RFP with the assignment "To produce a dependable estimate of inflation-adjusted revenue per FTE student for Ontario's colleges and universities for as long a period as the data allow, and to comment on the apparent effects of major changes in revenue sources on academic and other decision making in PSE institutions". The following discussion is drawn from the report prepared in response to that request (Snowdon and Associates, 2009).

Figure 5.1 shows real revenue per FTE for Ontario universities for the period 1980 to 2008. The numerator contains the major sources of operating revenue: provincial grants, tuition credit, other fees, and miscellaneous income (e.g., investment income).⁴¹ The denominator contains the number of full-time equivalent students.

Two deflators are used: the Consumer Price Index (CPI) in 2008 dollars and a special Higher Education Price Index (HEPI) as calculated by the Association of Universities and Colleges of Canada (AUCC, 2008, Volume 3, Appendix E). HEPI recognizes that compensation represents a large percentage of college and university costs, and that changes in faculty compensation may differ from movements in the CPI.

The choice of deflator clearly matters. Using the CPI, inflation-adjusted revenue per full-time equivalent student in 2008 was virtually identical to what it was in 1980, although funding still fluctuated somewhat

⁴¹ Note that the variable chosen is operating revenue which is only a portion of total funds available to colleges and universities. The choice of what to include in the numerator is arbitrary and, inevitably, controversial. The authors devote considerable space to explaining their decision of what to include and, significantly, what to exclude. See in particular the discussion on pages 16-31. It is important to note that the amounts in some of the excluded categories—research funding, capital grants, special purpose grants, and one-time only grants—are significant.

throughout the period. There was a sharp fall between 1980 and 1982, followed by a slow but steady increase to 1993, at which time revenue was back at its 1980 level. Revenue fell significantly between 1993 and 1997, rose slightly to 2000, was flat until 2004, and rose after 2004 with the injection of *Reaching Higher* funding.

Using HEPI, the revenue picture is much starker. Real revenue per FTE student was 21.2 per cent lower in 2008 than in 1980. It fell continuously from 1980 to 1990, rose slightly to 1993, and then declined virtually continuously until 2005 when the *Reaching Higher* allocations appear.

The composition of revenue also changed significantly over this period.⁴² Provincial grants accounted for 80 per cent of university operating revenue in 1980, compared to 50 per cent in 2008, while the share for tuition rose from 14 per cent in 1980 to 37 per cent in 2008. Other fees made up 1 per cent of total operating revenue in 1980 and 6 per cent two decades later. The share of miscellaneous revenue sources rose only slightly, from 5 per cent at the start of the period to 7 per cent in 2008.

Ontario's university funding formula differentiates among programs of registration, reflecting in a rough way, relative instruction costs. The operating grant per FTE student is lowest for first-year Arts and Science programs, higher for Engineering and Education, and highest for Medical and Doctoral programs.⁴³ The implication of this feature of the formula is that if the composition of enrolment shifts over time, the per-student grant will change as well.

Figure 5.2 shows real revenue per basic income unit (BIU) for universities for the same period as in Figure 5.1, with both the CPI and the HEPI deflators. By this calculation, there is a decline in real operating revenues of 7.1 per cent using the CPI deflator, and a decline of 27.2 per cent using the HEPI deflator. Evidently, some of the increase in real per FTE student operating grants over time was due to a shift in relative enrolments toward the more expensive science, engineering, and health programs.

Figure 5.3 shows real revenue per FTE for colleges for the period 1992 to 2008.⁴⁴ The numerator contains

grants and tuition revenue. The denominator contains full-time equivalent enrolment.

Real revenue per FTE using the CPI deflator was only slightly lower in 2008 than in 1992, although it exhibits a definite U-shape over the period. Revenue per FTE student fell significantly between 1992 and 1997, was flat until 2003, and has risen slowly but steadily since. The same pattern holds when HEPI is used as the deflator, although revenue per FTE continues to fall until 2003. The notable difference between the two series is that the 2008 value for real revenue per FTE using the HEPI deflator is significantly below its 1992 value.

College funding also differentiates among programs of registration, which is also intended to reflect differences in costs. Figure 5.4 shows real revenue per weighted-funding unit (WFU) over the period 1992 to 2008, using the same two deflators. The trends are similar to those in Figure 5.2, and the major difference is that the values in 2008 relative to those in 1992 are lower. Clearly, colleges as well as universities have shifted relative enrolment to more expensive programs.

The sources of revenue for colleges changed over time as well. The share of tuition doubled from 15 per cent in 1992 to 30 per cent in 2008.⁴⁵ Snowdon and Associates (2009, p. 31) do not report other sources for income for colleges.

5.2.2 | Observations

We suggested in the introduction to this section that there are four key issues concerning operating revenue for Ontario's colleges and universities: the appropriate level; the split among government grants, tuition and other fees, and other sources; how government grants are structured; and the regulations, if any, regarding tuition and other fees.

Not surprisingly perhaps, colleges and universities make revenue considerations key components of their recommendations for a new PSE strategy. Explicitly or implicitly, the briefs touch on each of the four issues.

The COU (December, 2009) seems to suggest by its choice of title—*Reaching Even Higher: The Next Multi-Year Funding Plan for Postsecondary Education*—that

42 All data are from Snowdon and Associates.

43 See Clark et al 2009, p. 89.

44 It is not possible to go back beyond 1992 because of major changes in financial and enrolment reporting in that year. See Snowdon and Associates, p. 45.

45 Calculated from Snowdon and Associates (2009, p. 31). Note that the calculation for 1992 is tuition as a percentage of tuition plus grants, whereas for 2008 it is tuition plus grants less set-aside.

FIGURE 5.1

Real Revenue per FTE for Ontario Universities, 1980 to 2008

Source: Snowden and Associates, "Revisiting Ontario College and University Revenue Data", 2009 HECGO

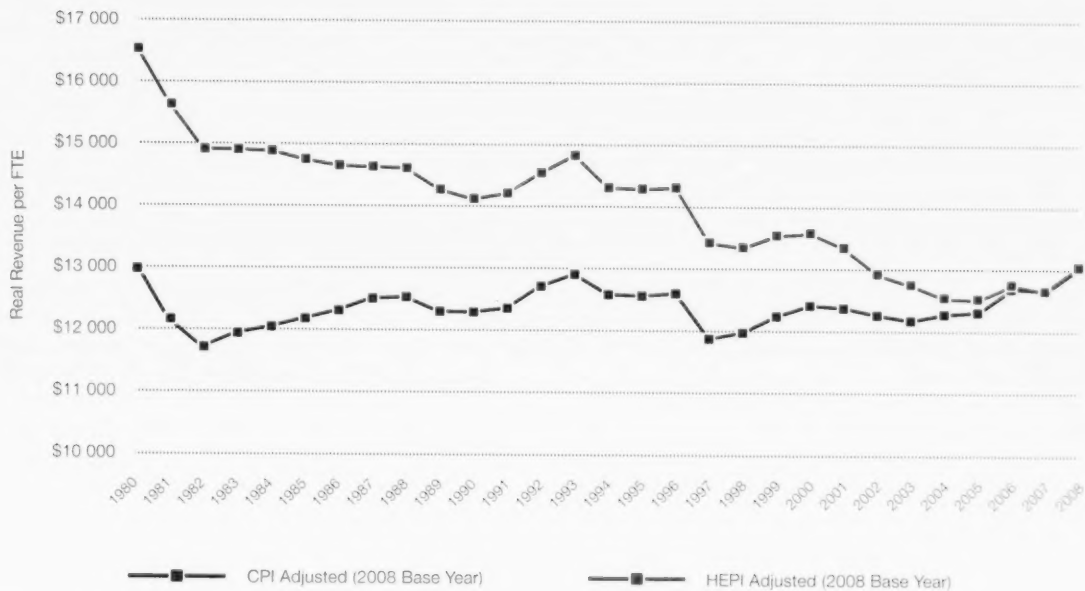
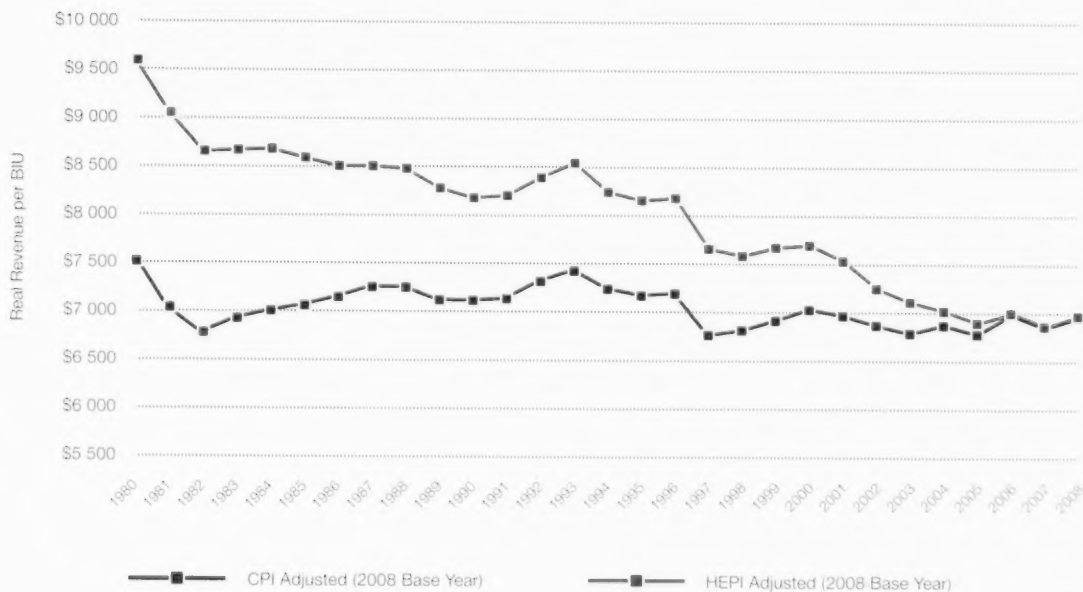


FIGURE 5.2

Real Revenue per BIU for Ontario Universities, 1980 to 2008

Source: Snowden and Associates, "Revisiting Ontario College and University Revenue Data", 2009 HECGO



Chapter 5

System Design

The preceding chapters have set out the main challenges that a new PSE strategy will have to address. The most pressing issue is accommodating the tens of thousands of additional students expected by 2021 (Clark, Moran, Skolnik, and Trick, 2009, pp. 25-27). The bulk of this demand is expected to occur in the GTA, primarily from students wanting to pursue undergraduate degrees. These additional spaces must be provided without compromising progress on other long-term system goals such as increasing participation of students from under-represented groups and maintaining and enhancing quality.

The challenges are made more severe by the current fiscal situation. *Reaching Higher* was widely accepted by the postsecondary education sector, in part because it came with an infusion of new funds. Now, the government is projecting a deficit of \$24.7 billion for the current year and continued shortfalls for several more years. This fiscal outlook for government is exacerbated by the decline in returns to institutional endowments and by the anticipated slowing of donations (Usher and Dunn, 2009).

FIGURE 5.3

Real Revenue per FTE for Ontario Colleges, 1992 to 2008

Source: Snowden and Associates, "Revealing Ontario College and University Revenue Data", 2009 HEQCO

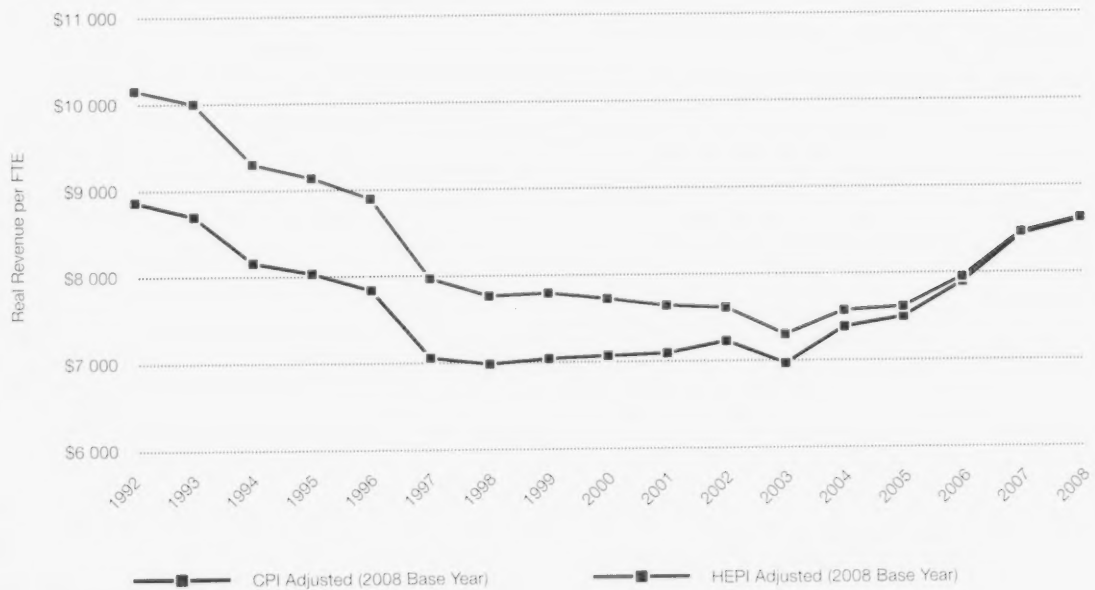
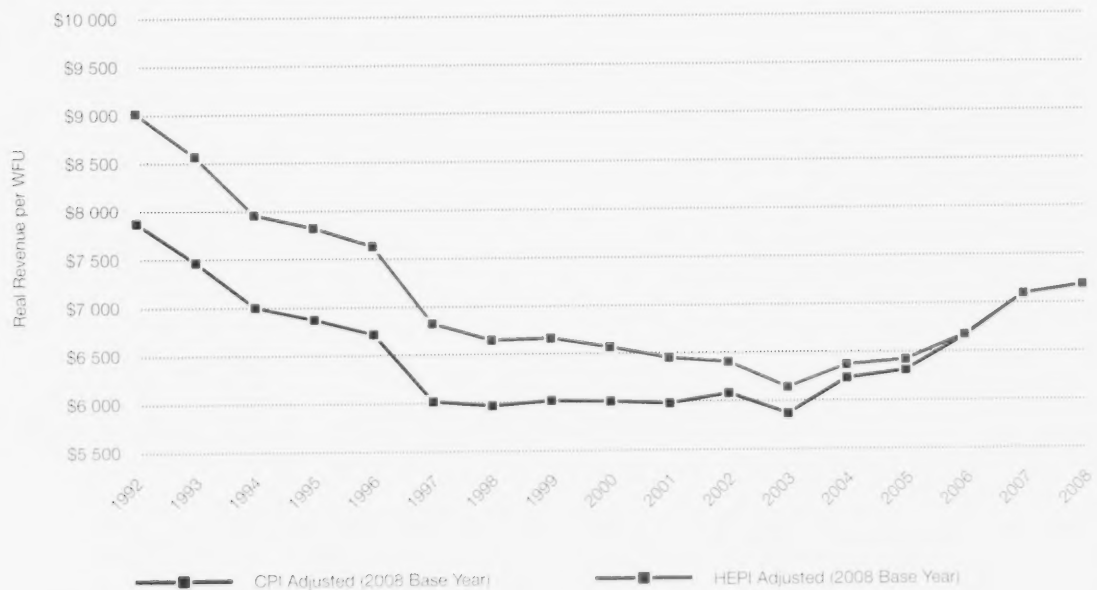


FIGURE 5.4

Real Revenue per WFU for Ontario Colleges, 1992 to 2008

Source: Snowden and Associates, "Revealing Ontario College and University Revenue Data", 2009 HEQCO



developing a new strategy is primarily a funding issue. Its recommendations with respect to the amount of funding are very explicit: annual increases in base operating budgets to accommodate enrolment increases, further increases to improve educational quality, offsets for some portion of annual inflation in operating costs, and further capital investments. As regards the structure of grants, it suggests that the increases be added to base funding.

The COU's position on tuition fees stems primarily from a revenue perspective. Acknowledging that fiscal considerations will likely constrain the government's ability to increase operating grants significantly in the short term, the COU looks for tuition revenue as a substitute, and requests additional flexibility within the tuition framework.

Colleges Ontario (2009b) makes funding critical priorities one of its four proposed goals for Ontario's new vision for higher education. It recommends a stable, multi-year funding commitment that can address ongoing needs as well as new cost pressures arising from recent and anticipated future large enrolment growth. It also comments on the need to address funding for equipment and deferred maintenance. It does not comment directly on the structure of the funding beyond the multi-year feature.

The Colleges Ontario (CO) brief is quite detailed with respect to tuition policy. The perspective again is that of revenue requirements. It begins by noting that Ontario's college fees are the third lowest among the provinces and are 17 per cent below the national average. It recommends graduated annual fee increases until Ontario reaches the national average. CO also seeks increased flexibility in defining and setting fees for high-demand programs.

Clearly, a new PSE strategy must deal with these funding issues. One approach is to proceed incrementally. Thus, a new strategy could feature additional operating funding for colleges and universities. The amounts would be a compromise between what is required to meet long-term targets⁴⁶ and what is feasible in current fiscal circumstances. It would be useful to consider at least partial compensation for annual cost increases since the absence of this feature in the current arrangements is the

source of much long-term difficulty. The grants could be tied in some fashion to enrolment targets, and perhaps to other system-wide objectives such as incentives for enhancing college-university collaboration. Tuition policy would be set partly out of consideration for institutional revenue needs and partly, in conjunction with financial support measures, to reflect accessibility objectives.

Proceeding in this manner may not be enough, however. Some observers have concluded that a more fundamental restructuring of Ontario's postsecondary education system is in order. If this view is accepted, decisions about future funding levels, funding structures, and tuition fee policies must flow from a comprehensive review of system design.

5.3 | A Case for System Change

One prominent call for system change is contained in the recently-released monograph *Academic Transformation: The Forces Reshaping Higher Education in Ontario* by Ian Clark, Greg Moran, Michael Skolnik, and David Trick (2009). HEQCO commissioned this volume as part of its research strategy on system design. The assignment was to identify the main challenges that the Ontario postsecondary education system will face in the next decade, to evaluate the ability of the system as currently structured to meet these challenges, and to suggest options for reform.

5.3.1 | Analysis

The basic thesis of *Academic Transformation* is that the present approach to the provision of bachelor's education in Ontario is not sustainable and is in need of significant modification. This is an important and controversial argument, so it is worth sketching it out in some detail.⁴⁷

The stage for the present system was set by two higher education policy decisions made in the 1960s: that colleges would have no role in the provision of bachelor's credit activity and that publicly-supported universities would have complete autonomy in deciding on their purpose, mission, and objectives.

Until the 1960s, even though most university professors were active scholars and researchers, it could still be

46 There are a number of possible long-run targets. The national average college and university per student grants are frequently cited. One might go further and argue that per student funding should be the highest among the provinces if Ontario is expected to be the leader with respect to participation rates and educational quality. The Institute for Competitiveness and Prosperity (2007) has argued for funding levels commensurate with those in competitor US public universities.

47 The following paragraphs draw on summary material prepared for HEQCO by the authors.

said that Ontario's universities were primarily teaching institutions. Since the 1960s, however, a single idea of the mission of the university—the research university—has been adopted by all. A key element of the model is that of the teacher-researcher ideal: undergraduate students should be taught by professors who are active researchers.

Not only have all the universities embraced the research university model but, in the past two decades, there has been a growing expectation from the public and the government that universities should produce new knowledge that will enhance Canada's economic well-being and international economic competitiveness. This expectation has fostered substantial growth in university research, brought changes to the traditional research paradigm, and introduced new costs—both human and financial.

While the universities have experienced growing internal and external pressure to expand research, the pressure to expand accessibility to bachelor's programs has continued unabated. Further increases in the participation rate in university will require increased enrolment from groups that have been historically under-represented in higher education. Academic success for additional members of these groups may require more attention and resources than universities have provided to students in the past.

As it struggles with the challenges of massive increases in enrolment, Ontario is relying exclusively on a publicly supported system of research-focused universities—the most expensive type of postsecondary institution—to provide bachelor's education to a population of students with increasingly diverse educational requirements. Besides being expensive, this model provides insufficient variety in the types of bachelor's experiences available to students relative to the diversity of students' backgrounds, situations, aspirations, and learning styles.

The rest of the postsecondary system has not experienced a corresponding change in its role. When the colleges were established, their primary function was to provide preparation for employment. Offering the first two years of university-level arts and sciences courses, as did colleges in Alberta, British Columbia, and many American states, was specifically excluded from the mandate of colleges in Ontario. Although some colleges have developed programs of this type over the years, the programs comprise only about 2 per cent of total college enrolment. Transfer to university for students in these programs is not supported by a provincial policy

framework or infrastructure.

Another equally small effort by the colleges has been the development of bachelor's programs in selected fields of applied studies, enrolment in which also comprises about 2 per cent of total college enrolment.

The same act of the legislature that enables colleges to offer bachelor's programs also allows private postsecondary institutions to make application for the right to offer degree programs. However, to date, only two small and highly specialized secular private institutions have obtained this right.

Despite these few changes in the colleges, which have been enabled by recent legislation, the responsibility for providing mass bachelor's-level education in Ontario rests almost exclusively with the universities, that is, with institutions that also have a major and vital role in producing new knowledge.

Relying almost exclusively on a set of publicly funded research universities to provide mass higher education at the bachelor's level has several noteworthy consequences—chronic financial strain being the most obvious one. Government funding has not kept pace with the combination of enrolment growth and inflation for most of the past two decades, despite government urging the universities to expand enrolment continuously and substantially. Instead, governments have allowed the universities more flexibility in regard to tuition and mandatory fees with the result that total revenue per student from government grants and student tuition and fees, adjusted for inflation as measured by the CPI, has remained almost constant over the past two decades.

The problem is that per-student costs tend to grow more quickly than CPI inflation. Compensation costs face pressures from wage settlements, progress-through-the-ranks salary increases for faculty, and higher employee benefit costs. Other costs such as utilities may climb faster than CPI inflation as well. In the meantime, there has been a long-term shift among full-time university faculty toward greater research responsibilities and reduced undergraduate teaching loads. The heightened competition among institutions for research grants, capital grants, high-quality students, private-sector partnerships, and gifts from donors has also imposed new costs.

A primary device by which universities have accommodated higher per-student costs has been to enrol additional students. They have done so in the

expectation that the marginal increase in revenue from these students will exceed the marginal increase in costs and so leave a surplus to cover inflationary costs that would otherwise be unfunded.

The conflicting pressures to both teach more students and win more research grants have transformed the nature of the full-time faculty. Undergraduate teaching loads—measured as the average number of courses taught by a full-time faculty member per year—have declined. Average class sizes have increased. The share of undergraduate teaching performed by temporary and part-time faculty has risen and is now reported by the largest undergraduate faculties in some universities as about half of all instruction. If current trends in per-student funding and expenditures continue, it is reasonable to expect that average class sizes and the share of teaching performed by instructors who are not permanent faculty will continue to rise indefinitely into the future.

As the proportion of faculty who are in full-time tenured positions has decreased, there are relatively fewer people to perform the duties that require a presence on campus, such as meetings with students, professional development and departmental meetings. At the same time, faculty must cope with the increased complexity of the new research environment that has resulted from such programs as the Canada Foundation for Innovation, the strategic research initiatives of the national granting councils, and direct research collaborations with the private sector. Research now commonly involves unprecedented levels of collaboration across disciplines, sectors, and geographic regions, not forgetting their accountability to funding agencies. The simultaneous pressure to increase both enrolment and the volume of research in this environment has resulted in over-commitment of individuals and institutions.

The practice of employing substantial and increasing numbers of part-time faculty who are given no time for research is in dramatic conflict with one of the espoused norms of the Ontario university sector—that students should be taught by scholar-teachers. This practice became widespread because it is financially impossible for all undergraduate teaching in Ontario to be done by scholar-teachers. The key question facing policy-makers is whether the necessary differentiation in arrangements for undergraduate teaching should come about by happenstance, as has been the case in recent years, or be determined through a more rational and deliberative approach.

5.3.2 | The Authors' Recommendations

The authors' recommendations are of three types: changes at the individual institution level, changes at the system level, and creating new institutions.

Changes at the Institution Level

One proposal at the institution level is the introduction, or re-introduction, of a 3-year bachelor's degree. The authors surmise that a high quality, carefully designed and implemented three-year degree would serve students well as a pre-professional degree for those going on to professional study in disciplines such as law, education, journalism, business, social work, and media studies, and as a final degree for those who pursue on-the-job professional training in the financial, government, management, retail, public service, and other sectors.

A second proposal is to expand the number of full-time teaching professors at universities. These individuals would carry heavier teaching loads, and would take the lead on curriculum development and on mobilizing knowledge for effective teaching and learning. The presence of substantially more members of full-time faculty holding predominantly teaching appointments would reduce the reliance of universities on part-time, contract instructors.

Changes at the System Level

At the system level, the authors support greater transfer options. In particular, they believe that students in career-related college programs should have more opportunities to transfer to university. The experience of other jurisdictions suggests that there are two principal ways of improving transfer opportunities for students in college career programs. One involves the establishment of provincial committees that consist of representatives of the colleges and universities and have a specific mandate to improve transfer opportunities. The other is the development in universities of specific programs aimed at facilitating transfer for students from college career programs.

A second system-level proposal is that a small number of colleges play a greater role in providing bachelor's programs. The college system continues to have the important mission of educating and training workers in a wide range of levels and fields for the provincial economy, and offering opportunities for career and personal development for individuals. Within that broad mission, there should be greater emphasis on ways in which this role might be enhanced and the whole system made more efficient through institutional differentiation and specialization. This differentiation could take a variety of forms including greater emphasis on training

in the trades, more focus on serving under prepared learners, or greater involvement in the provision of career focused bachelor's programs that rest on a solid liberal arts foundation.

New Institutions

Ultimately, they argue that creating degree-granting institutions that are highly focused on undergraduate education is the design change that would do the most to enhance the current system. To be effective, the degree programs offered by such institutions would be solely at the bachelor's level, and the emphasis of the institution would be on teaching rather than on research. The responsibilities of faculty, therefore, would be primarily undergraduate education.

They also suggest establishing an open university. Open universities deliver most or all of their courses online or through other electronic media. Yet, it is not the technology through which courses are provided that defines an open university. Rather, it is an educational philosophy, a key element of which is "open" admissions, that is, although students, once accepted and enrolled, must meet traditional course requirements and standards, their admission to programs and courses is not based upon their prior academic achievement but on their needs and aspirations as learners. An open university could play a particularly important role in facilitating degree completion for college graduates.

5.4 | Observations and HEQCO Research Underway or Planned

HEQCO agrees with the basic diagnosis contained in *Academic Transformation*. The authors make a convincing case that Ontario's PSE system, as currently structured, is not sustainable. In most years over the last two decades, costs have risen more rapidly than revenues for both colleges and universities. Institutions have coped with this situation by increasing average class sizes and by relying relatively more on contract instructors. The government also assists with year-end, one-time transfers of funds.

The authors argue, and we agree, that there are limits to these types of adjustments. It will become increasingly difficult for colleges and universities to absorb additional students while meeting growing expectations for research and public service. Eventually, it will become impossible.

It is unlikely, in the next few years at least, that funding will increase by enough to offset projected annual cost

increases plus provide for quality enhancement. Further, the system as currently structured cannot absorb significant cuts in funding without experiencing major dislocation. System change appears unavoidable.

The authors advance a number of ideas for system change. We agree that they have identified some logical options, but we note that their analysis stops short of providing hard evidence on the relative costs and benefits of each. This work must be done before any of the proposals can receive serious policy consideration.

Logically, there are four stages to the research. The first step is to have a critical look at the enrolment projections. How sensitive are the aggregate demand projections to changes in participation rates and immigration levels? How would colleges and universities allocate scarce spaces if the additions to capacity lag the demand? What effects would these rationing actions have on students' choices with respect to sectors, institutions, and programs?

The second step is to do benefit-cost analyses of the proposals in *Academic Transformation* and elsewhere that involve changes within existing institutions. The advantage is that these initiatives, if they are judged worthy and practical, could be implemented in relatively short order. The options that most obviously fit this criterion are:

1. introducing or expanding the 3-year degree programs;
2. introducing or expanding teaching professor appointments;
3. establishing or expanding system-wide e-learning and m-learning (mobile learning) capabilities.

In each case, the research would address some general questions:

- How, if at all, would the proposal address one or more of the challenges facing Ontario PSE as set out in *Academic Transformation*, with a particular focus on how it would help accommodate the anticipated net new enrolment?
- What resources would be required?
- How would the proposal be implemented?
- What are the non-financial obstacles to implementation that need to be overcome?

The third step is to examine recommendations for greater student choice in selecting and completing postsecondary education. The two main ideas

here, as noted, are increased opportunities for credit transfer and credentials recognition and expanding the number and type of undergraduate degree offerings by colleges. The research in each case would address the questions listed in the previous example.

The fourth step is to begin to examine proposals for new institutions. These ideas, even if deemed worthy and practical, would take several years to implement. The two examples given in *Academic Transformation* are establishing an open university and establishing one or more undergraduate universities. The request by a few Ontario colleges to be officially designated as polytechnics could also be considered in this general context. Doubtless there are other ideas as well. These proposals are complex and controversial and, for that reason, deserve some serious thought and analysis at an early stage.

We recognize that much of this research would require the full cooperation of and engagement by the Ministry and by colleges and universities. We also recognize that some activity is already underway, for example, the Working Group on Credit Transfer. While moving ahead with our research priorities in this area, we will do so in consultation with the Ministry and institutions.

In the Meantime

Planning for system change, thus, does not obviate the need for more immediate measures, notably decisions on grants and tuition policy. It is essential, however, that interim measures be consistent with longer-term plans. Any new PSE strategy must deal with immediate challenges such as the impending capacity problem in the GTA, but it should also clearly set out a vision and point the way toward more fundamental structural change.

6.1 Research Priorities

1. Our top priority in the coming year is filling data gaps. We indicated throughout this report where the major information deficiencies lie and the projects underway to address them. The three main approaches to filling the gaps are i) mining national data sources for Ontario-specific information, ii) exploring data-linking opportunities, and iii) assessing the feasibility of a made-in-Ontario longitudinal survey. For the latter two, we will explore the advantage of adopting a common student identifier, such as the OEN.

The information will be useful in all aspects of our future work, but especially for understanding the participation and persistence decisions made by under-represented groups, the place of pathways in Ontario's PSE system, and the links between postsecondary credentials and labour market outcomes.

2. Given the economic restructuring that Ontario is expected to undergo in the coming decade, our second priority is to examine the role of PSE in meeting the labour market needs of the new economy. This work will proceed in two stages. The first step is to examine the links between PSE attainment and labour market outcomes by level, by field of study, and by population characteristics. We have external work underway using the *National Graduates Survey*, and we will add to this with disaggregated data from the 2006 census.

The second step is to examine the policy options for improving these linkages; for example, providing more detailed labour market information, publicizing learning outcomes of PSE programs, making it easier for potential students to learn about these programs and adjust their choice accordingly, and smoothing the possibilities for colleges and universities to adapt to changing application patterns.

3. Our third priority is to continue compiling a more complete and reliable profile of students' participation and persistence in Ontario postsecondary education. This work will draw on the information acquired through HEQCO's gap-filling activities, and on best practices in structuring survey questions to encourage self-identification. An accurate count of participation by under-represented groups is essential for understanding the magnitude of the challenge we face in improving accessibility, and for evaluating the effectiveness of

policies directed at reducing these difficulties.

On the policy front, we will focus in particular on early intervention strategies. The evidence is clear, as described in chapter 2, that in order to increase participation by under-represented groups we must pay closer attention to the decisions that students and their families make in secondary school or, perhaps, even earlier. We will begin by examining international experiences, particularly those in the United States, to discern lessons for Ontario.

4. We will proceed with our educational quality research on four fronts. The first is to continue with empirical work investigating the potential for using student engagement and satisfaction surveys as indicators of educational quality. This will build on research already completed with the college satisfaction surveys and underway with the NSSE results. This research is of immediate relevance for choosing performance indicators for the revised MYAAs.

The second priority in this category is to continue to work with colleges and universities to evaluate the effectiveness of alternative ways to deliver teaching and learning and to provide student support services.

This is closely linked to the third priority in this category, namely to support the dissemination of effective educational practices. Institutions work at these activities constantly but often in isolation. HEQCO's contribution is to facilitate networks and support collaborative projects.

The fourth priority in this group is to support efforts by colleges and universities to identify at-risk students and to evaluate strategies for improving retention and graduation rates.

5. On the accountability front, we will continue to work with the Ministry and with stakeholder groups as appropriate to develop and implement a new set of MYAAs. Much of the work noted in previous points—compiling participation rates for under-represented groups, evaluating student engagement and satisfaction surveys as indicators of educational quality—fits with this commitment.
6. As regards system design, we will begin a series of benefit-cost and feasibility analyses of the proposals contained in *Academic Transformation* and in other analyses of Ontario's PSE system.

We recognize that the Ministry has taken the lead with respect to college-university collaboration, including credit transfer and credentials recognition. As noted in chapter 5, we stand ready to assist in providing evidence-based advice on these issues, as appropriate.

Our efforts over the next 12 months will be on changes that could be instituted within the existing structure such as 3-year degrees, more teaching professors, and greater use of e-learning and m-learning. We also intend to support the government with evidence-based research as they implement the Ontario Online Institute and a significant increase in the number of international students. Clearly, this work will require prior consultations with stakeholder groups.

Acronyms

ACL — Active and Collaborative Learning	NGS — National Graduates Survey
ASD — Autism Spectrum Disorder	NSSE — National Survey of Student Engagement
AUCC — Association of Universities and Colleges of Canada	OCAS — Ontario College Application Service
BCSSE — Beginning College Survey of Student Engagement	OCGS — Ontario Council on Graduate Studies
BIU — basic income unit	OCUTG — Ontario College-University Transfer Guide
CAS — College Applicant Survey	OECD — Organisation for Economic Co-operation and Development
CCSSE — Community College Survey of Student Engagement	OEN — Ontario Education Number
CEGEP — Collège d'enseignement général et professionnel	OQF — Ontario Qualifications Framework
CGPSS — Canadian Graduate and Professional Student Survey	OSAP — Ontario Student Assistance Program
CLASSE — Classroom Survey of Student Engagement	OSSD — Ontario Secondary School Diploma
CO — Colleges Ontario	OUAC — Ontario Universities' Application Centre
COU — Council of Ontario Universities	PALS — Participation and Activity Limitation Survey
CPI — Consumer Price Index	PASS — Peer-Assisted Study Sessions
CUCC — College University Consortium Council	PEQAB — Postsecondary Education Quality Assessment Board
CUDO — Common University Data Ontario	PISA — Program for International Student Assessment
CVS — Credentials Validation Service	PQAPA — Program Quality Assurance Process Audit
EQAO — Education Quality and Accountability Office	PSE — postsecondary education
FSSE — Faculty Survey of Student Engagement	RFP — request for proposal
FTE — full-time equivalent	SAG — Student Access Guarantee
GPA — grade point average	SFI — Student-Faculty Interaction
GTA — Greater Toronto Area	SLID — Survey of Labour and Income Dynamics
HEPI — Higher Education Price Index	STEM — science, technology, engineering, and mathematics
HEQCO — Higher Education Quality Council of Ontario	UAS — University Applicant Survey
HRSDC — Human Resources and Skills (previously Social) Development Canada	UCAS — University and College Applicant Study
KMETL — Knowledge Mobilization for Effective Teaching and Learning	UDLEs — Undergraduate Degree Level Expectations
KPI — key performance indicator	UPRAC — Undergraduate Program Review Audit Committee
MOU — Memorandum of Understanding	WFO — weighted-funding unit
MTCU — Ministry of Training, Colleges and Universities	WIL — work-integrated learning
MYAAs — Multi-Year Accountability Agreements	YITS — Youth in Transition Survey
	YITS-A — Youth in Transition Survey, Cohort A
	YITS-B — Youth in Transition Survey, Cohort B

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Chapter 6

Research Priorities

The Council's priorities for the next 12 months are as follows. Except for the first item, they are listed in the order in which the topics have been described in this annual review. These priorities are to be read in conjunction with the research noted in the closing section of every chapter where we have outlined in detail our work that is already underway.

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